

FIG.1

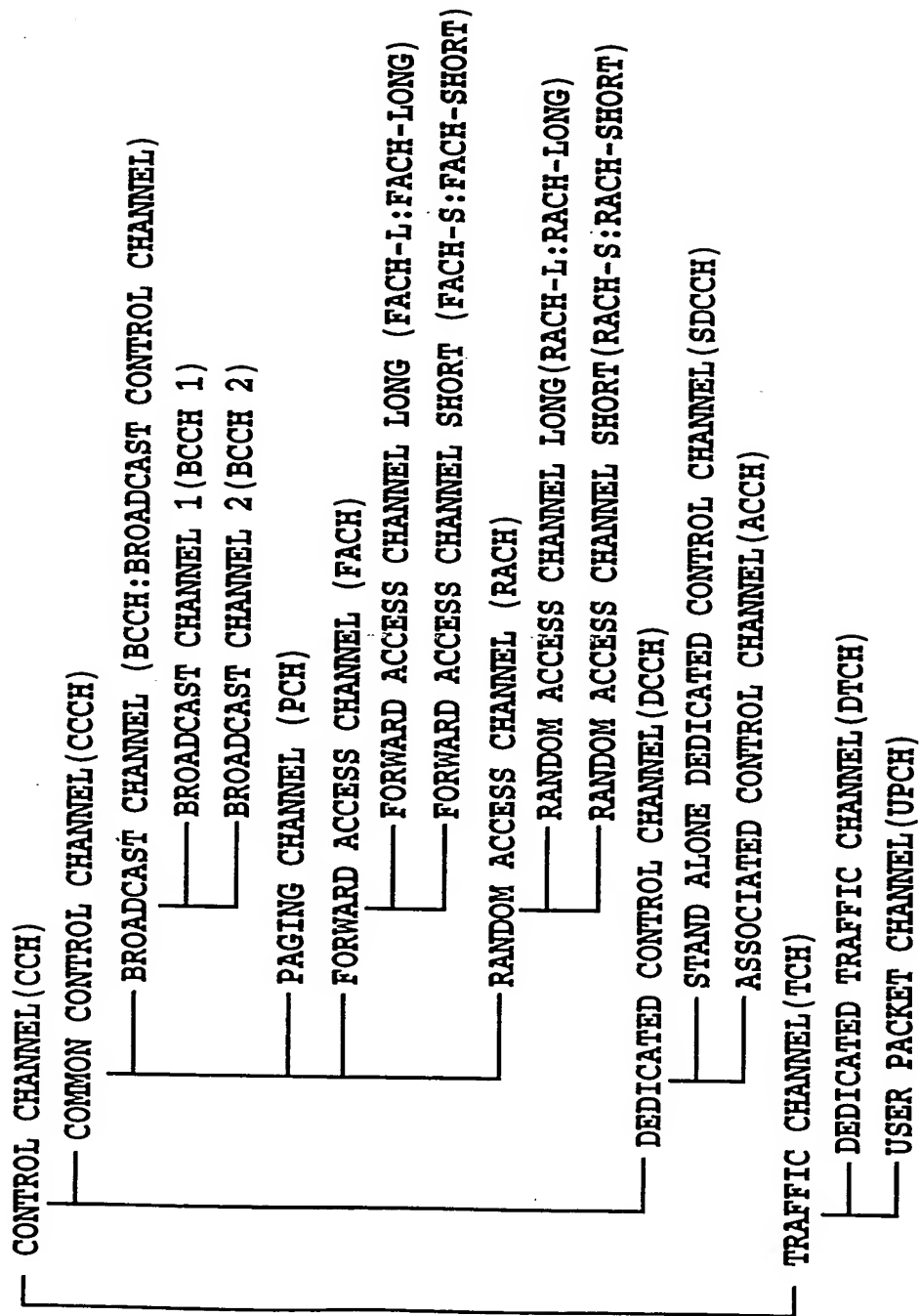


FIG.2

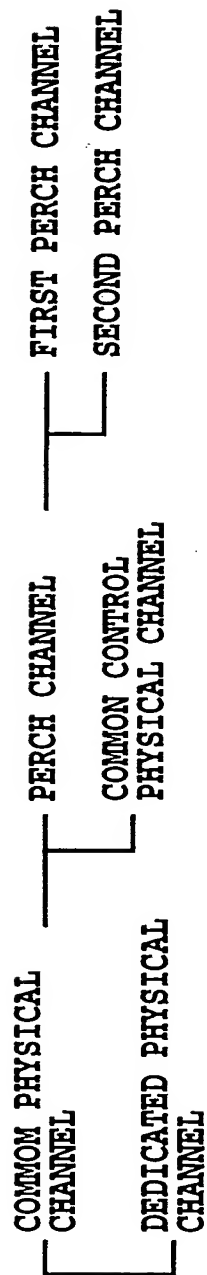


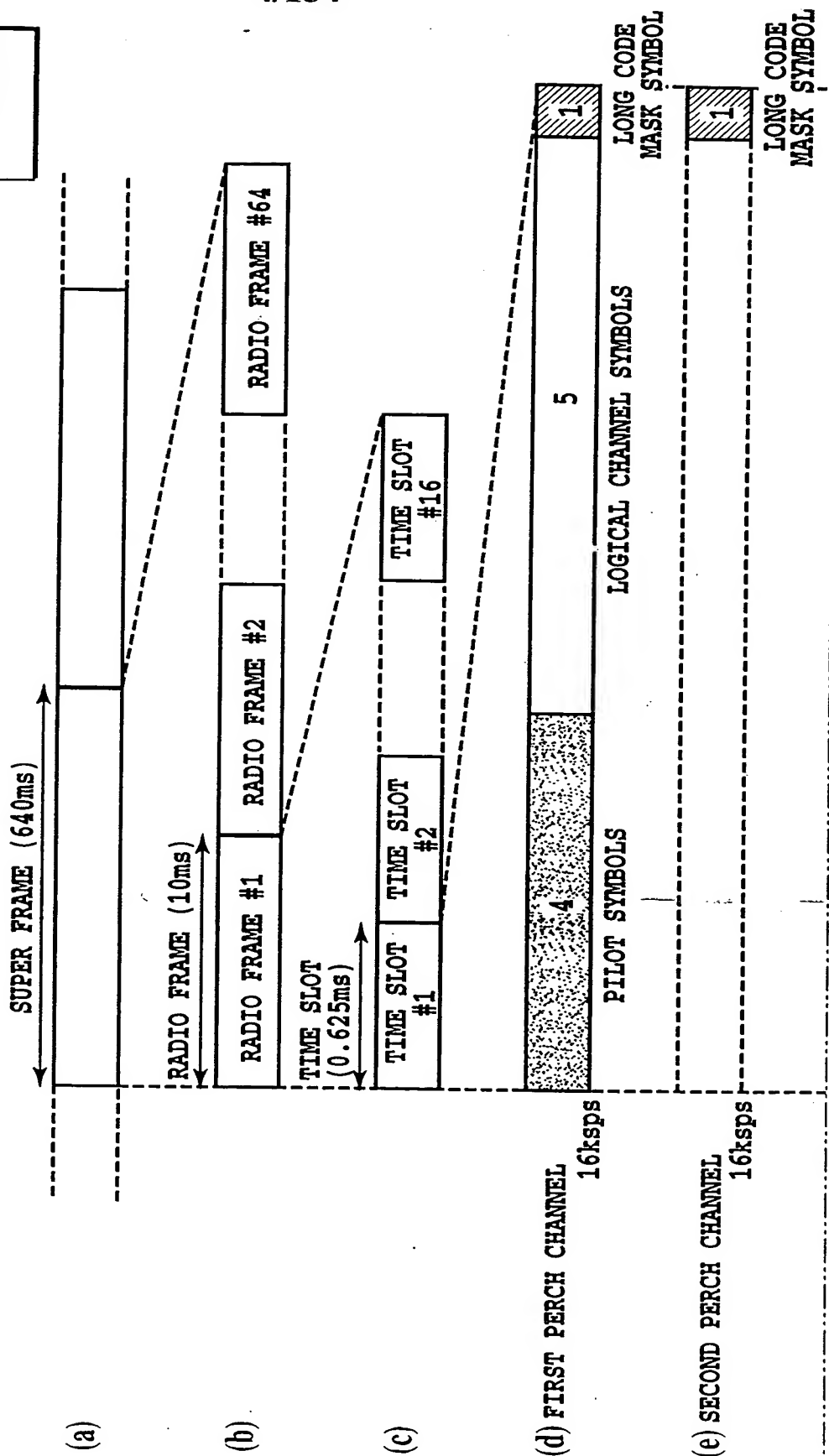
FIG.3

FIG.4

FIG.4A

FIG.4B

FIG.4A



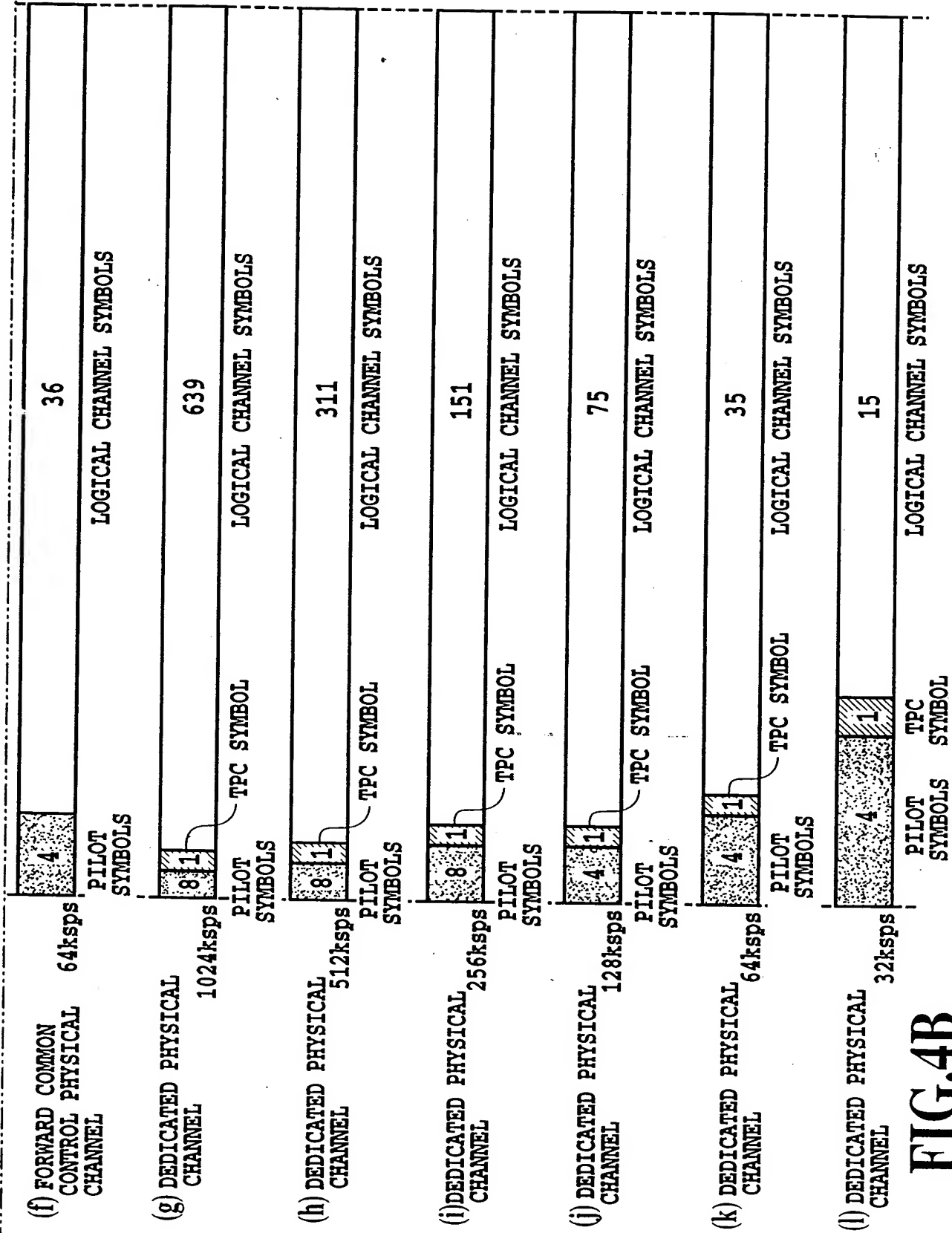


FIG.4B

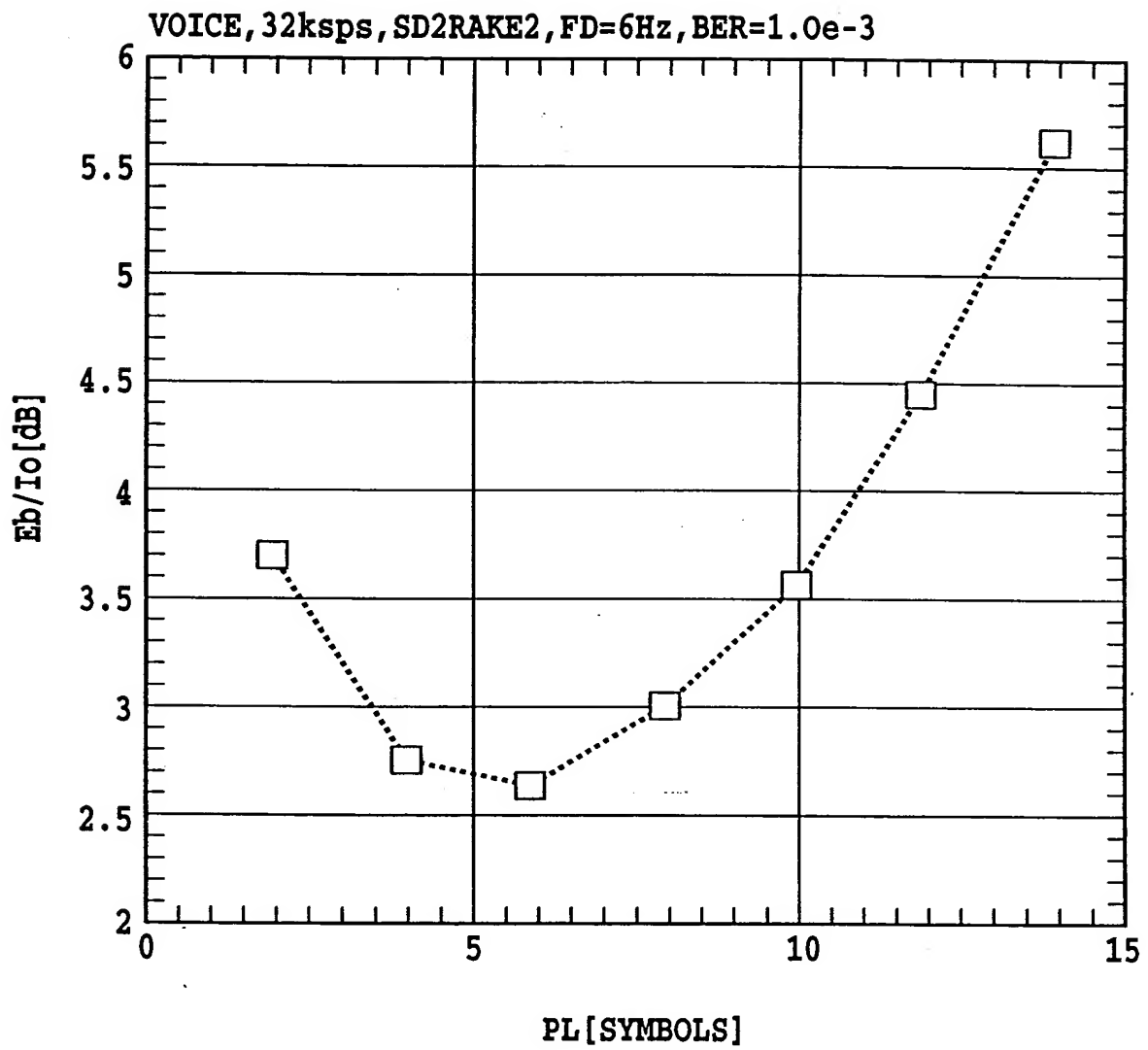


FIG.5

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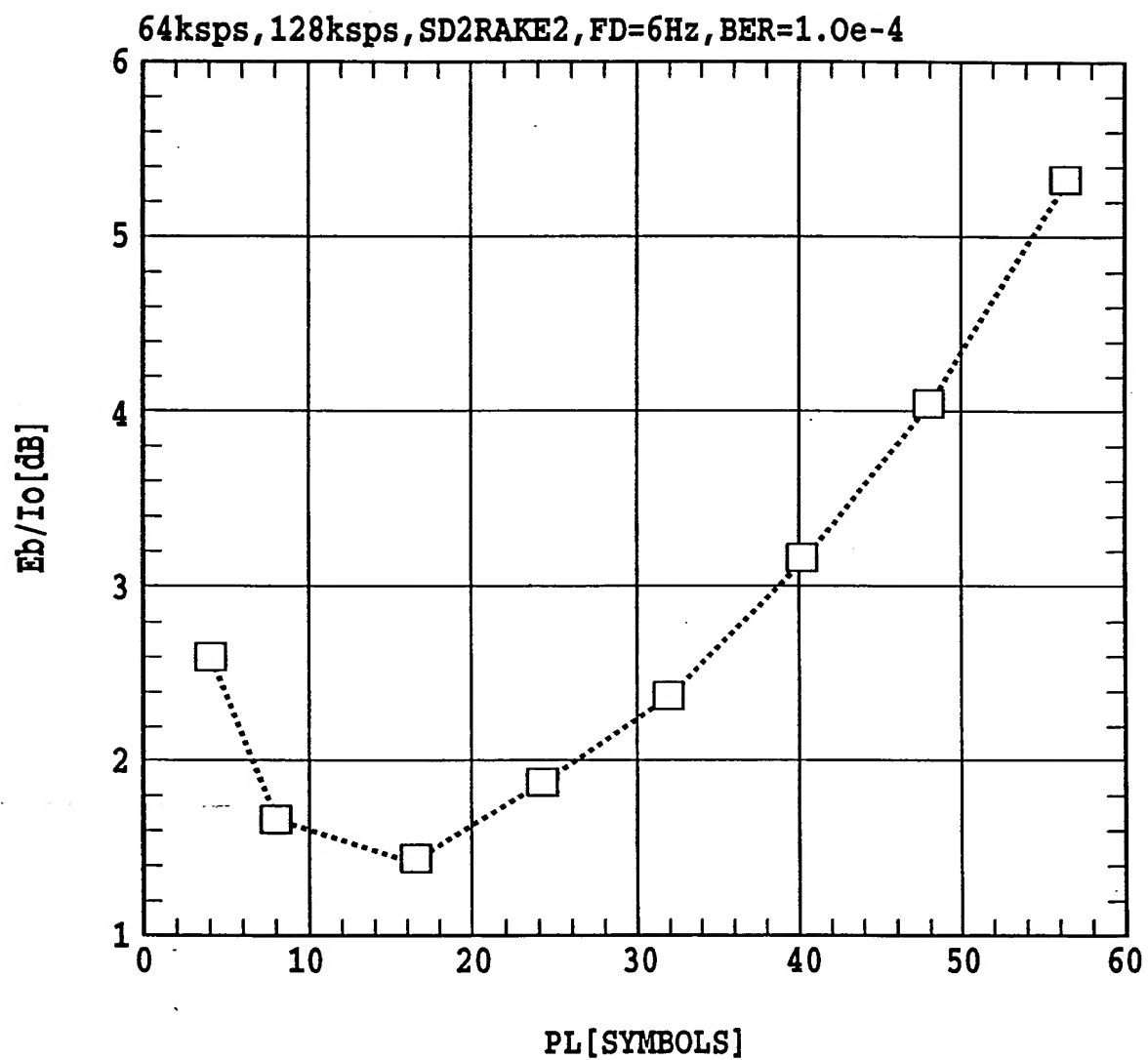


FIG.6

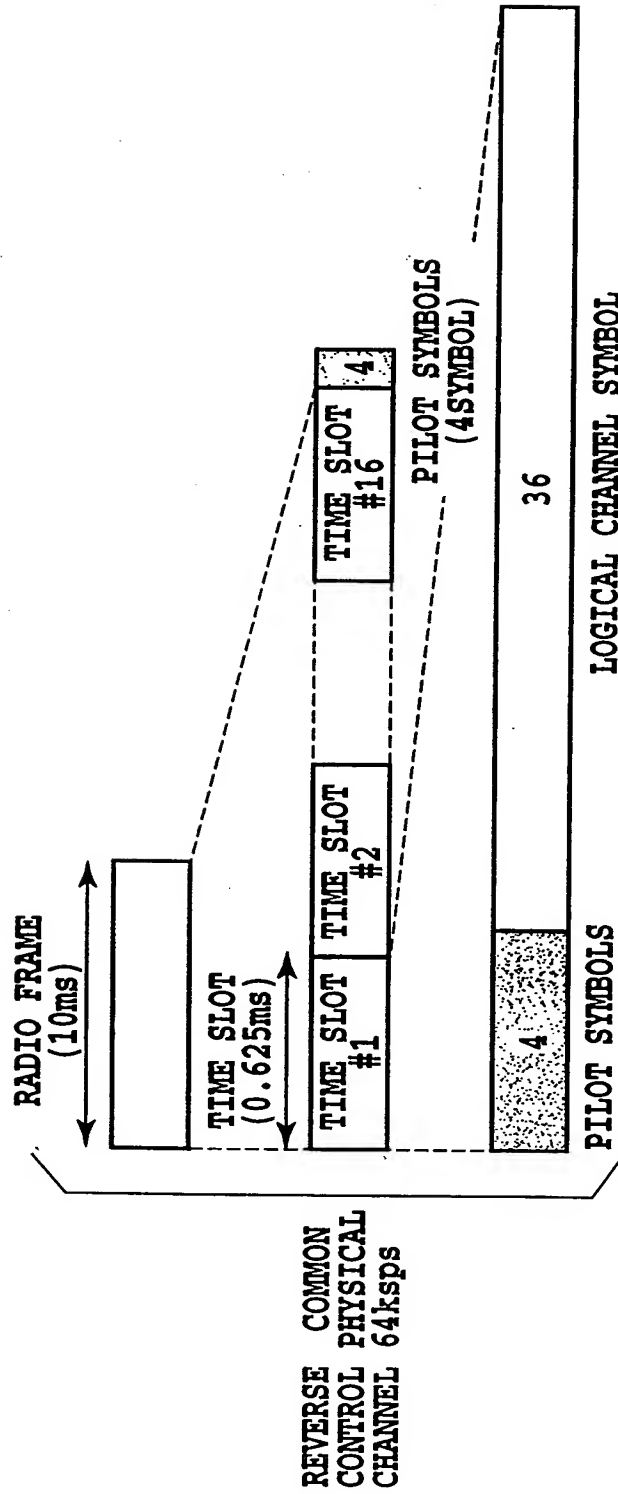


FIG.7A

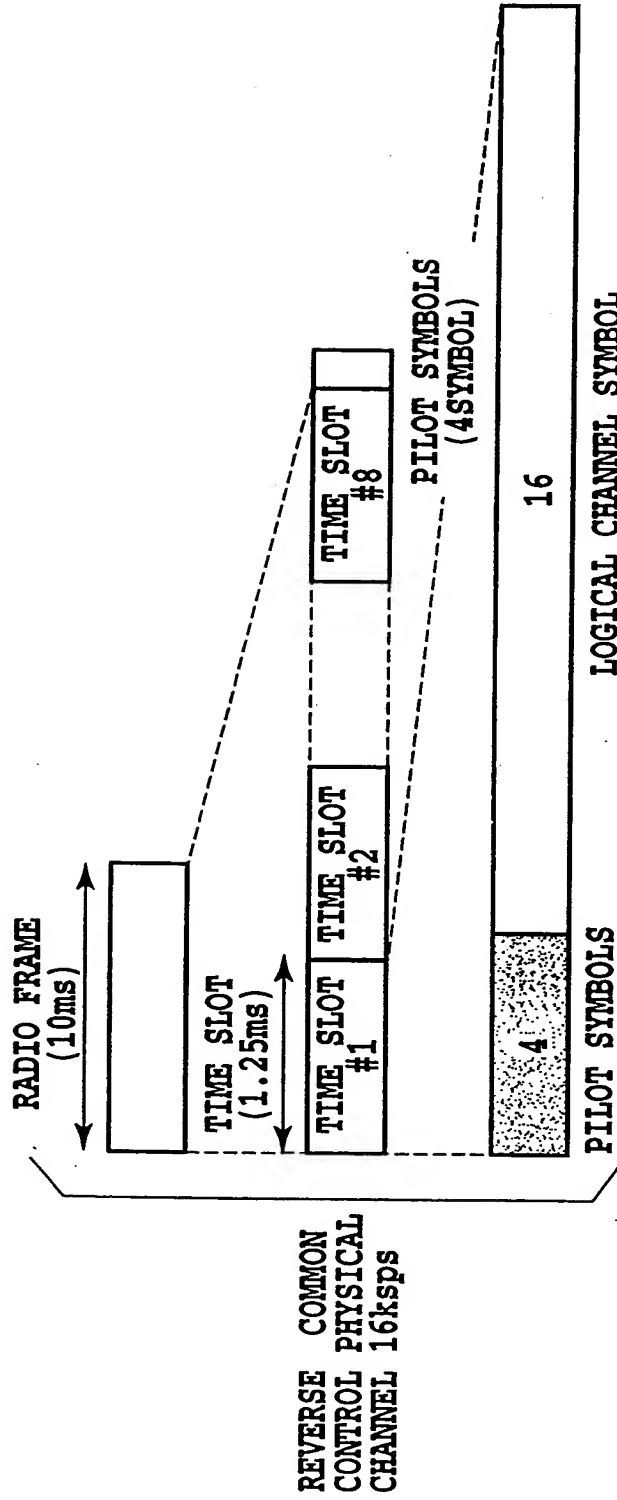


FIG.7B

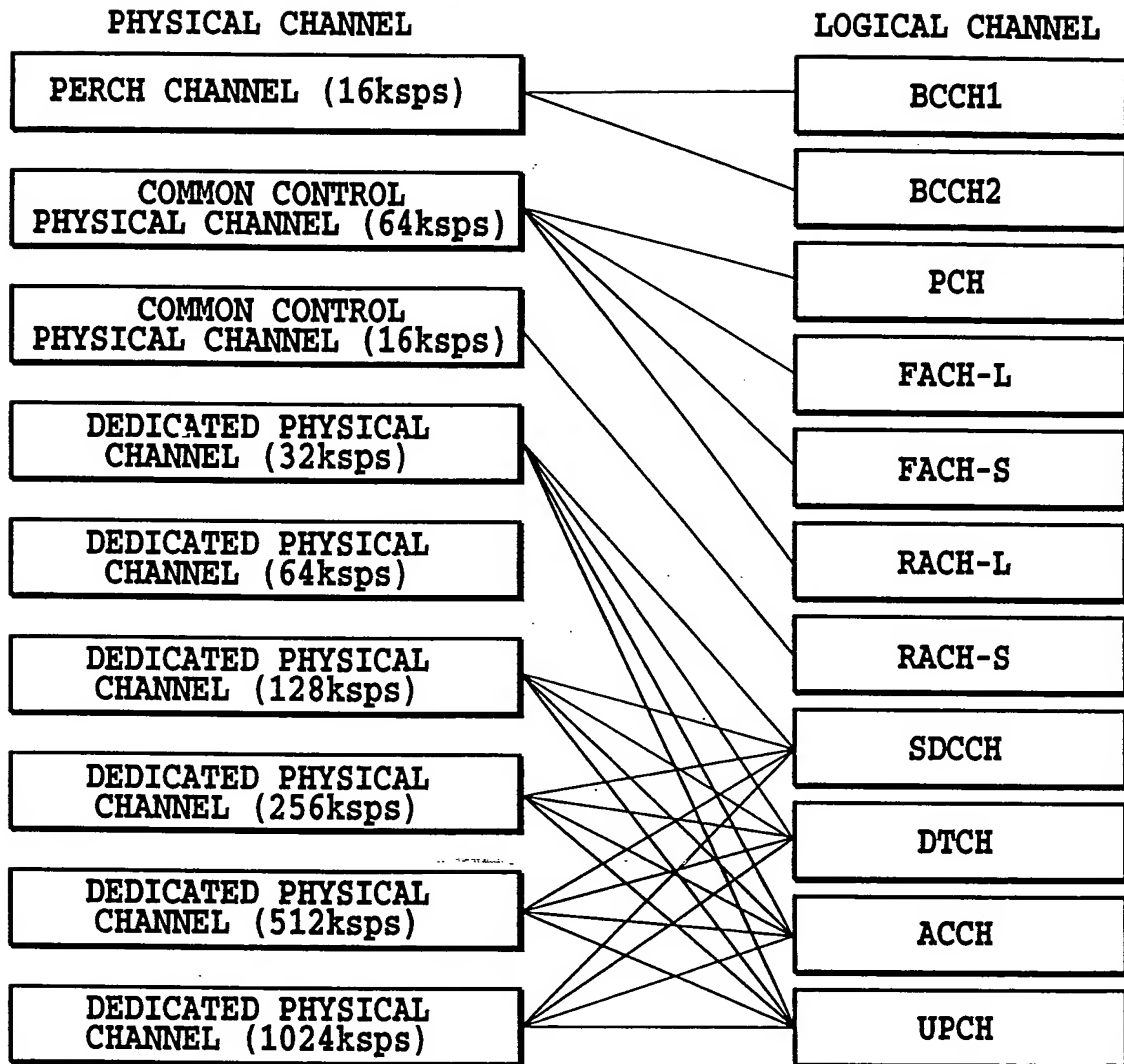


FIG.8

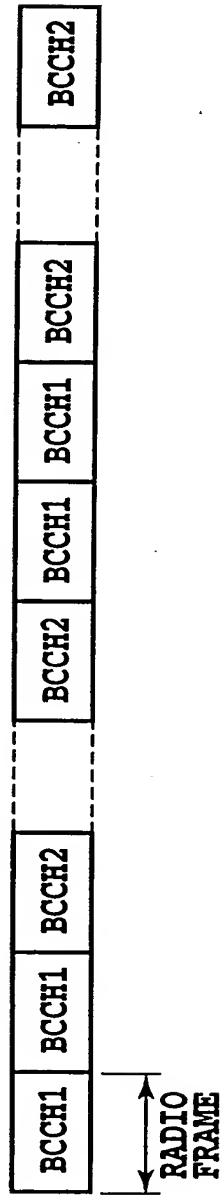


FIG.9

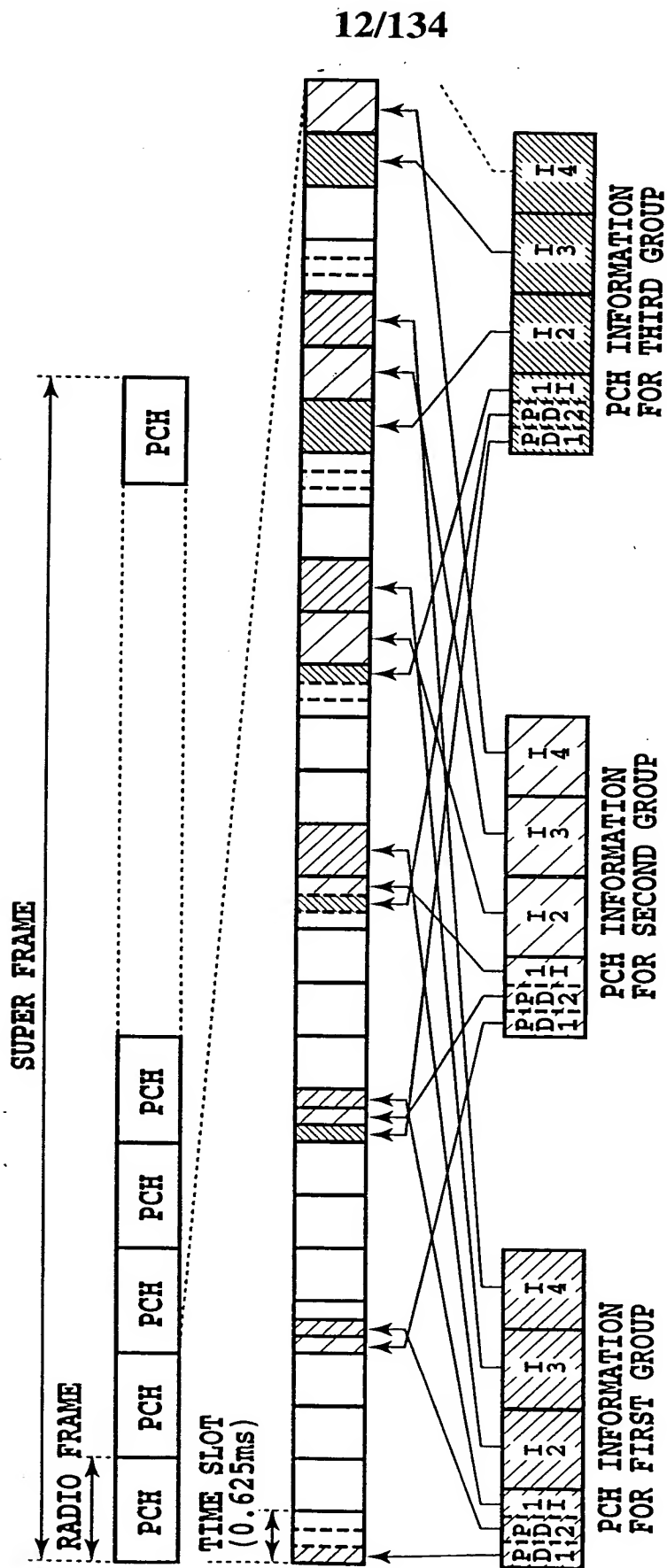


FIG.10

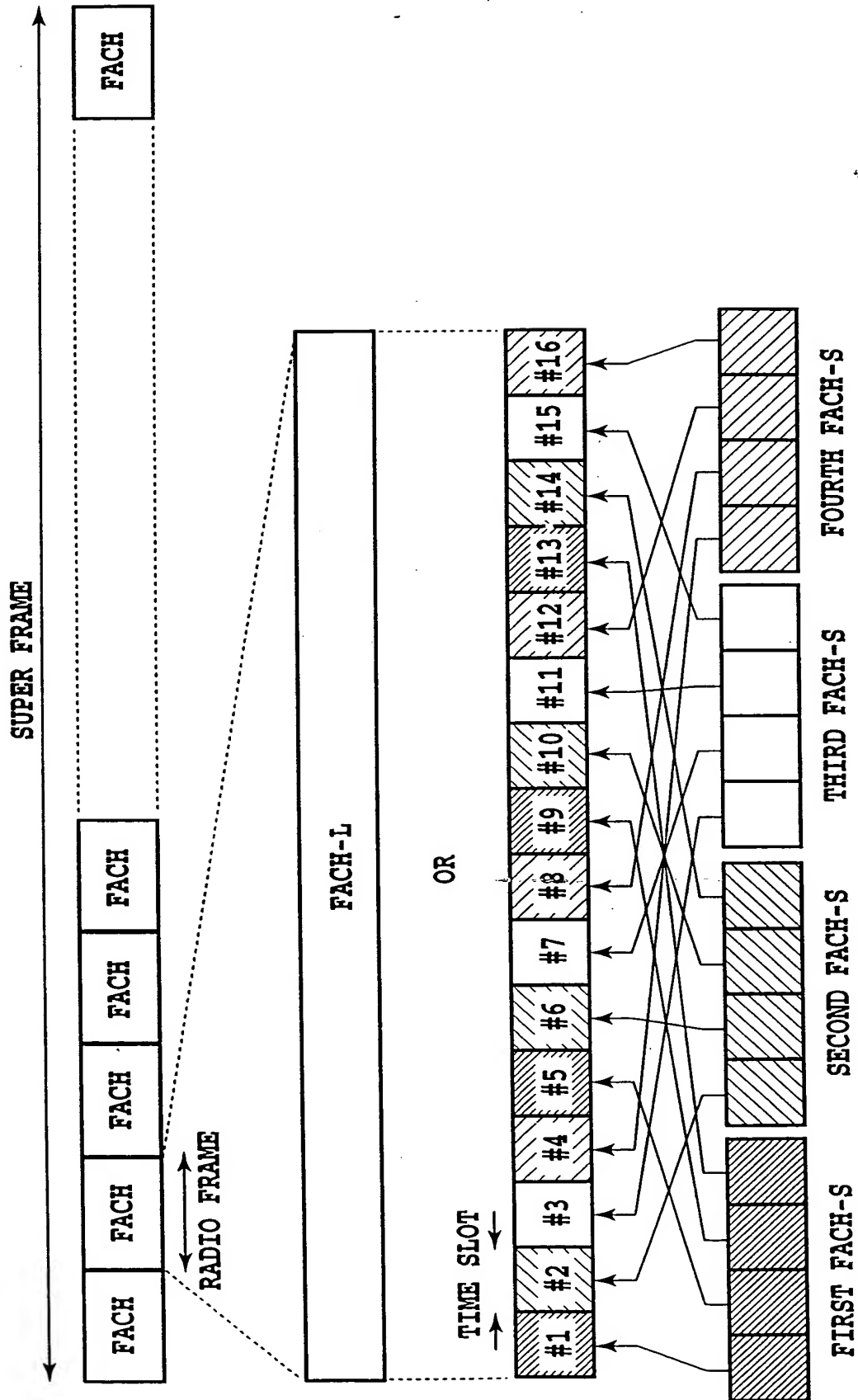


FIG.11

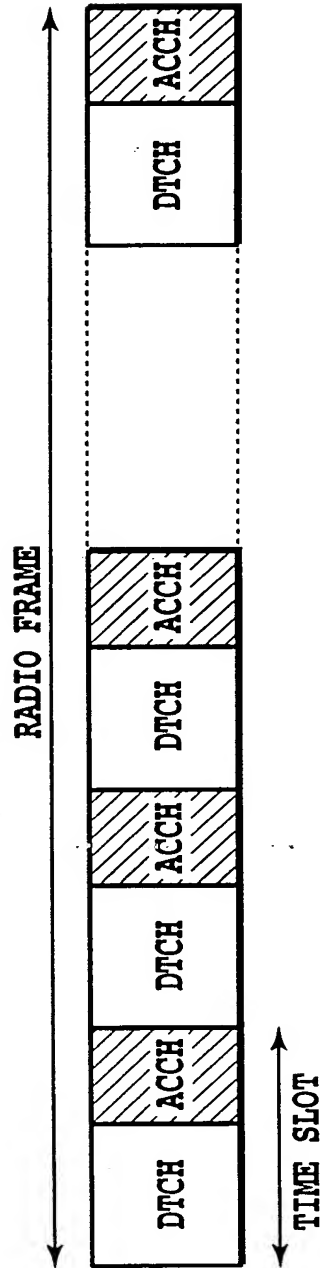


FIG.12

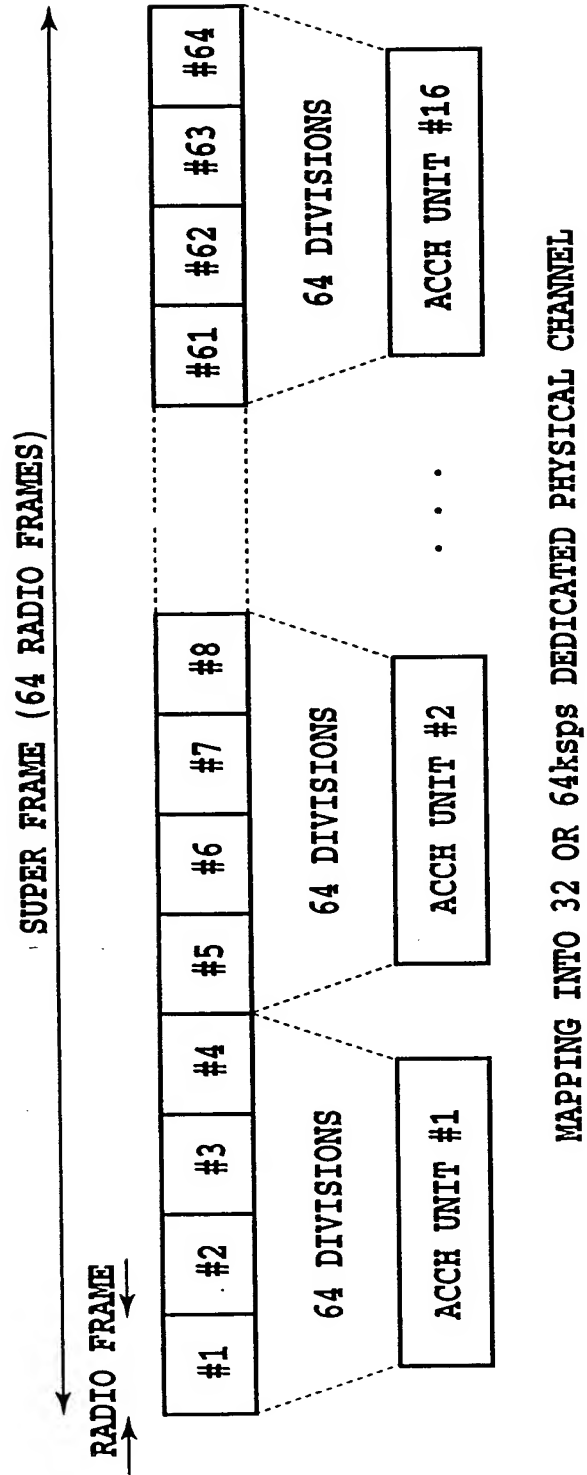
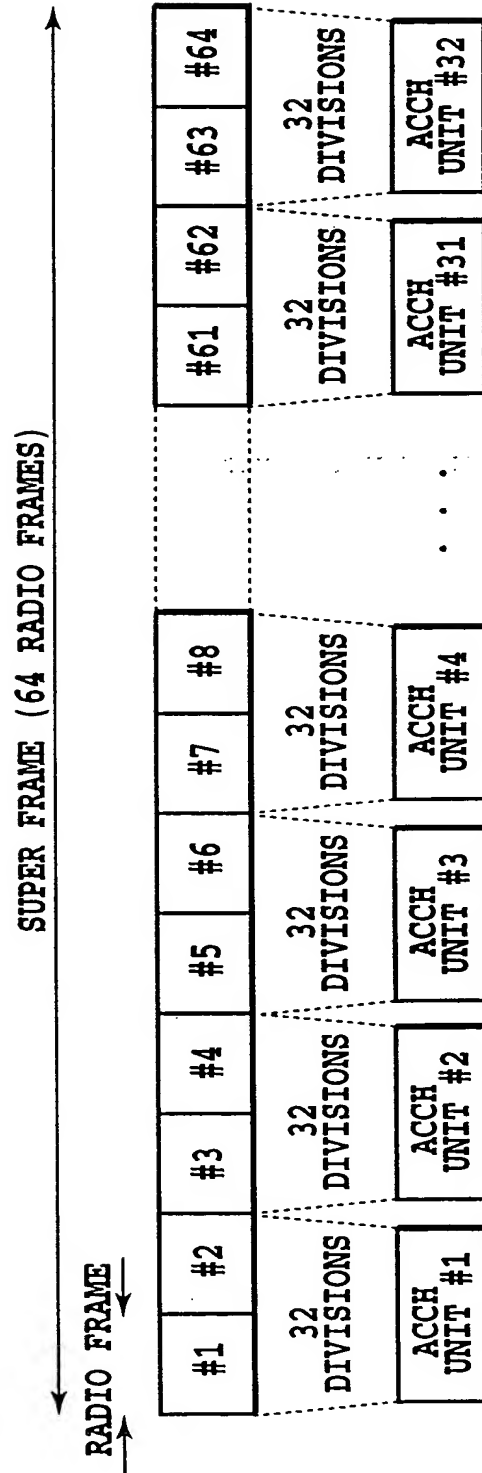
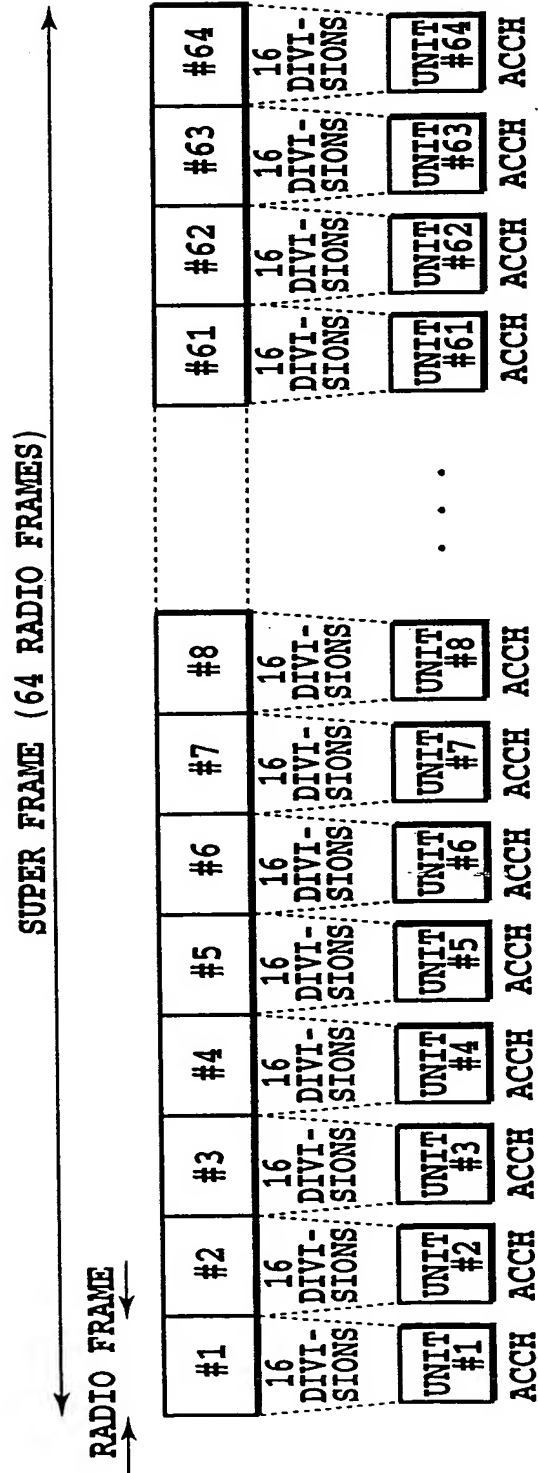


FIG.13A



MAPPING INTO 128kps DEDICATED PHYSICAL CHANNEL

FIG.13B



MAPPING INTO 256ksps DEDICATED PHYSICAL CHANNEL

FIG.13C

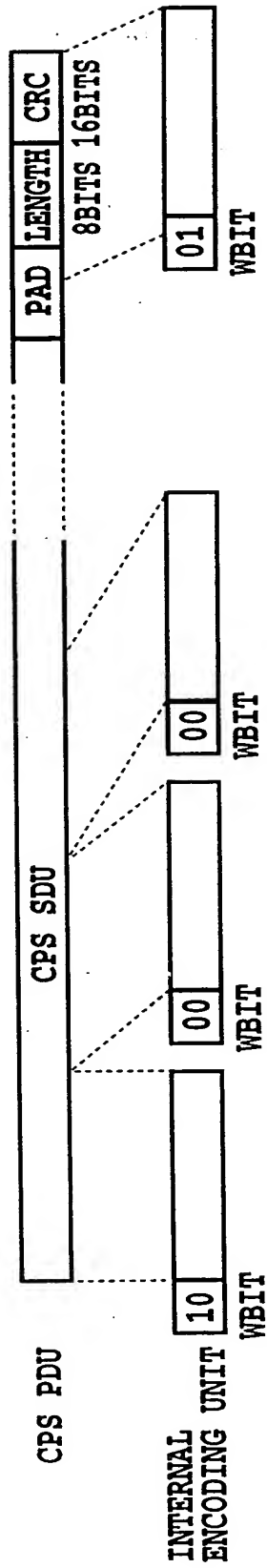


FIG.14

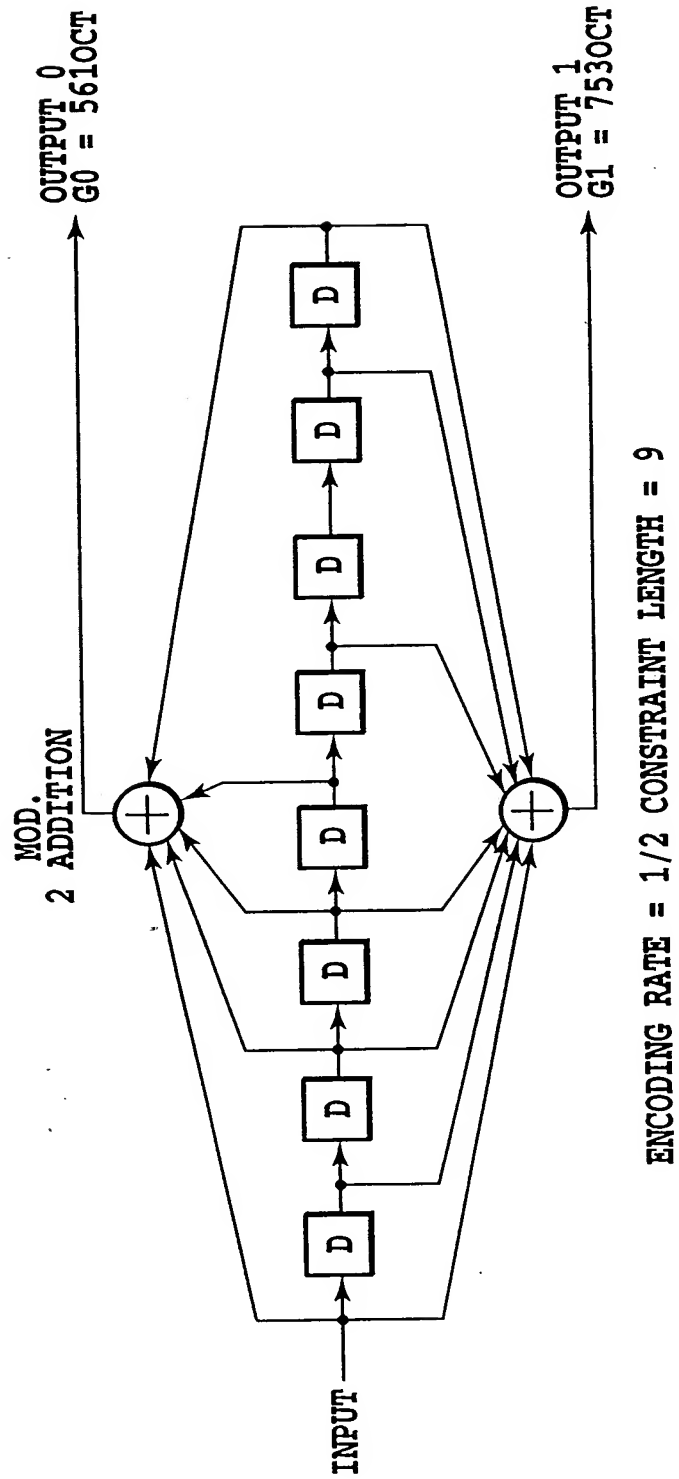
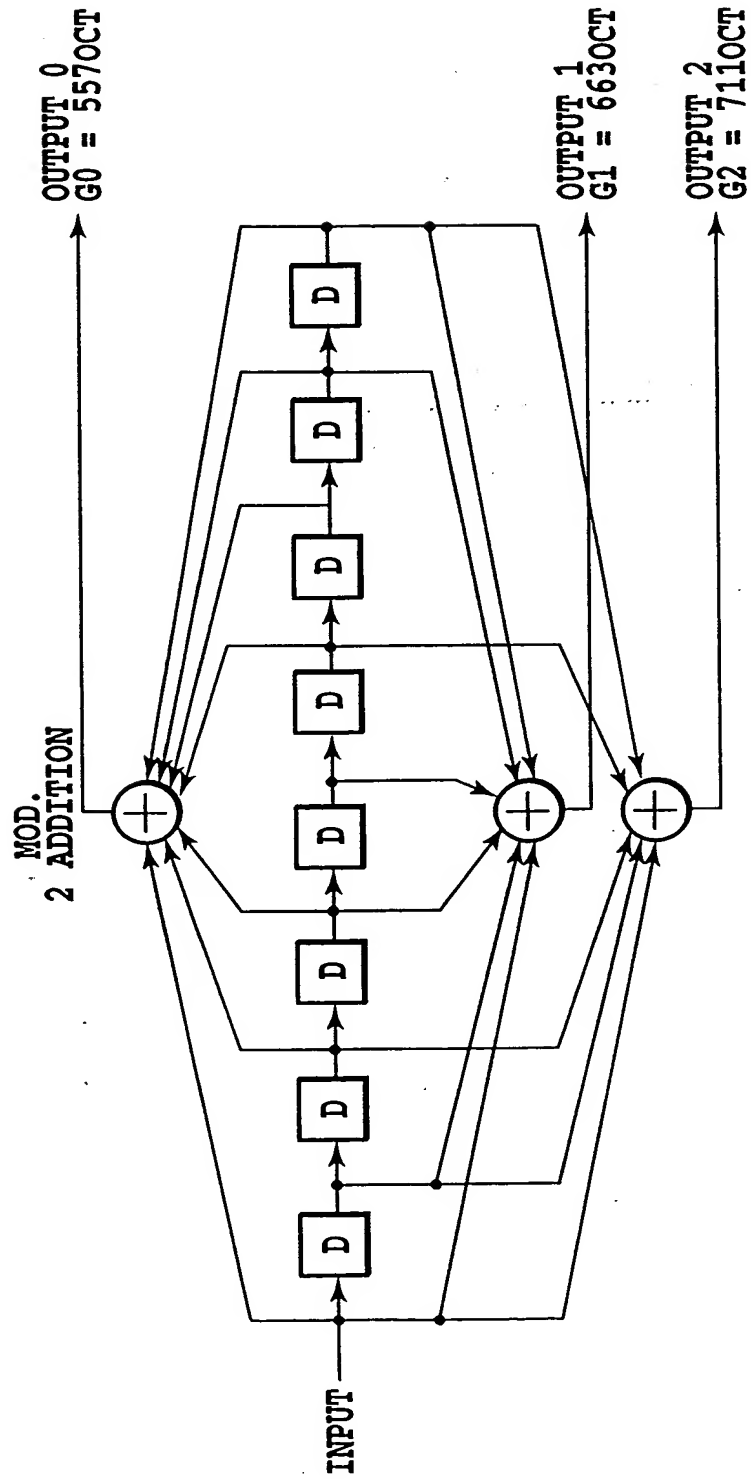


FIG.15A



ENCODING RATE = 1/3 CONSTRAINT LENGTH = 9

FIG.15B

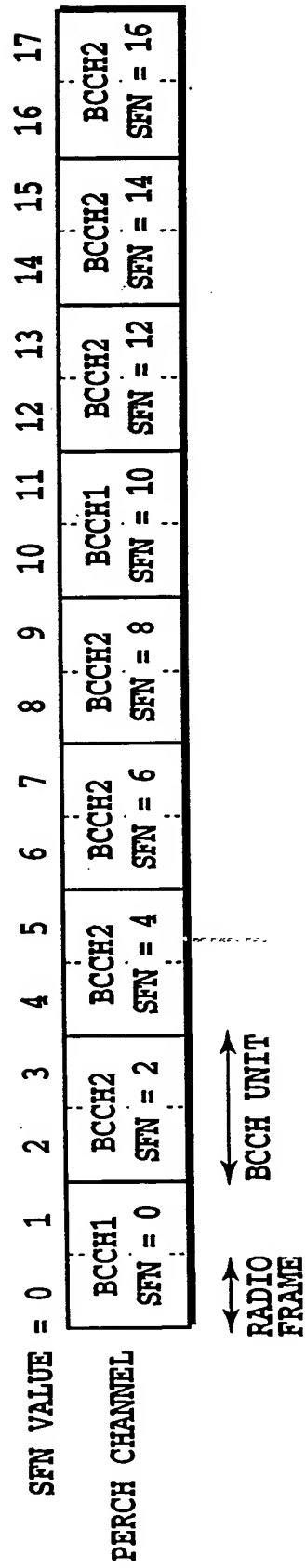


FIG.16

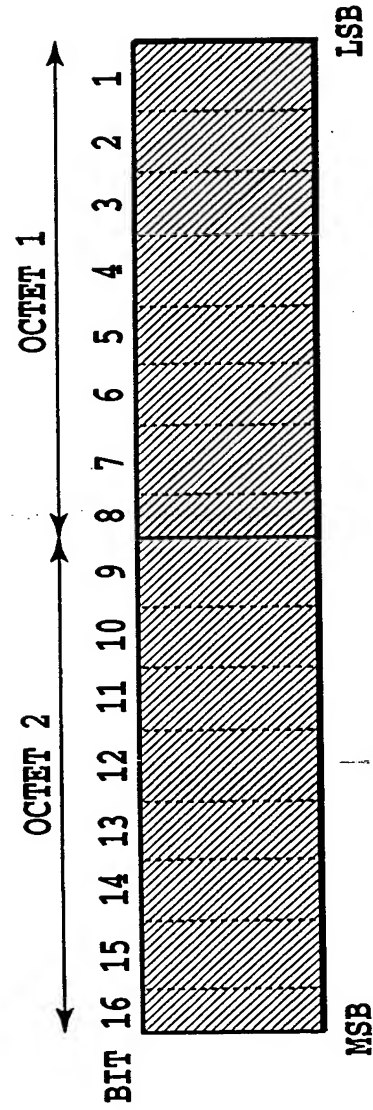


FIG.17

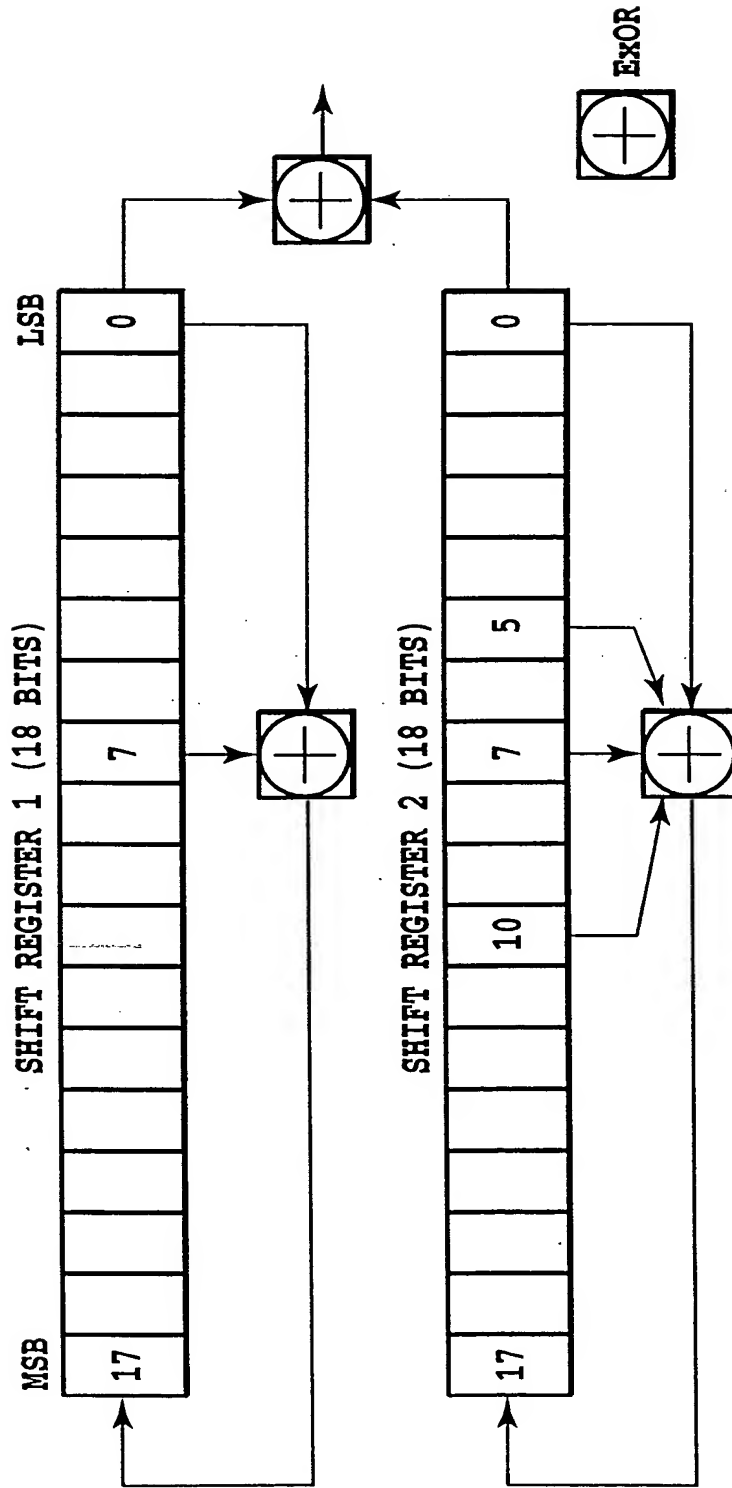


FIG.18

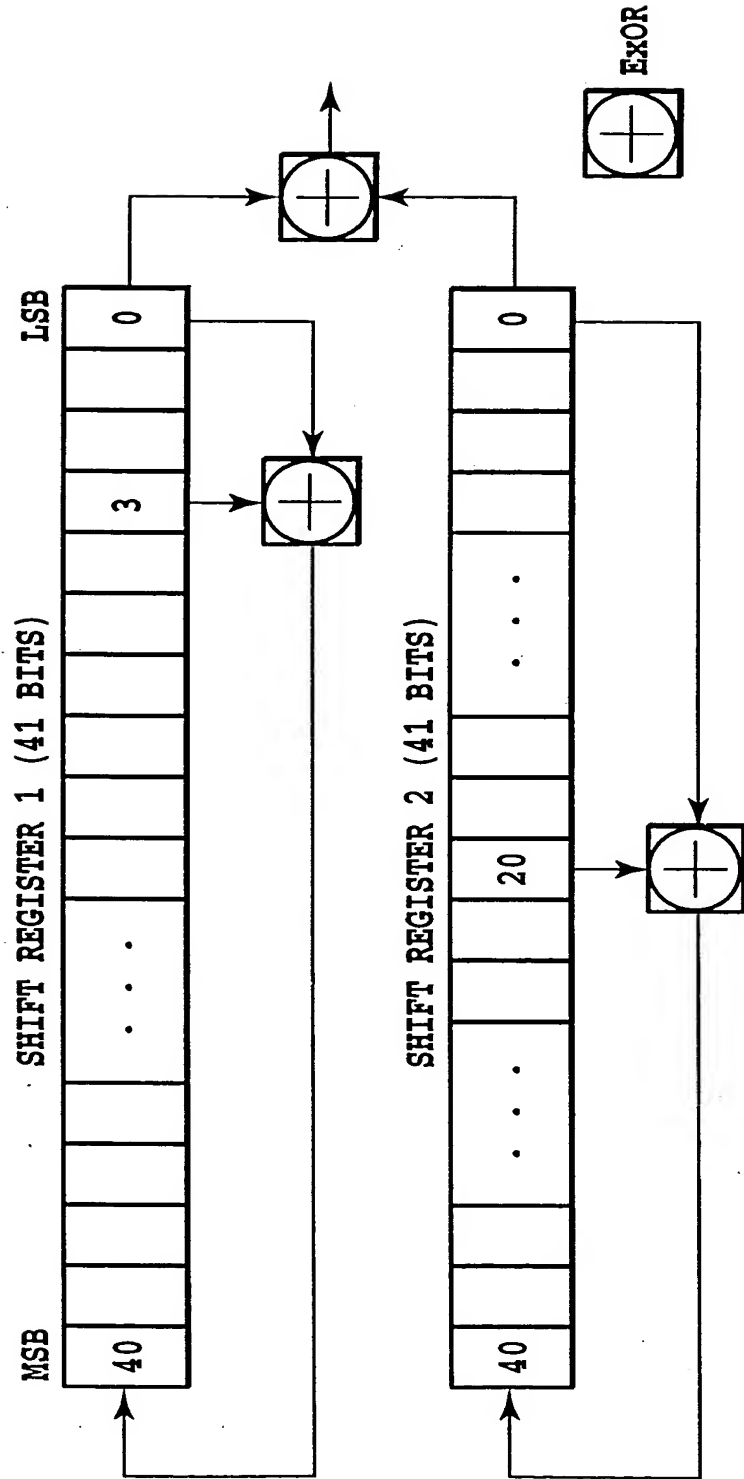


FIG.19

$$C_0(0)=1$$

$$\begin{bmatrix} C_1(0) \\ C_1(1) \end{bmatrix} = \begin{bmatrix} C_0(0) & C_0(0) \\ C_0(0) & \overline{C_0(0)} \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}$$

$$\begin{bmatrix} C_2(0) \\ C_2(1) \\ C_2(2) \\ C_2(3) \end{bmatrix} = \begin{bmatrix} C_1(0) & C_1(0) \\ C_1(0) & \overline{C_1(0)} \\ C_1(1) & C_1(1) \\ C_1(1) & \overline{C_1(1)} \end{bmatrix} = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 1 \end{bmatrix}$$

$$\vdots$$

$$\begin{bmatrix} C_{n+1}(0) \\ C_{n+1}(1) \\ C_{n+1}(2) \\ C_{n+1}(3) \\ \vdots \\ C_{n+1}(2^{n+1}-2) \\ C_{n+1}(2^{n+1}-1) \end{bmatrix} = \begin{bmatrix} C_n(0) & C_n(0) \\ C_n(0) & \overline{C_n(0)} \\ C_n(1) & C_n(1) \\ C_n(1) & \overline{C_n(1)} \\ \vdots & \vdots \\ C_n(2^{n-1}) & C_n(2^{n-1}) \\ C_n(2^{n-1}) & \overline{C_n(2^{n-1})} \end{bmatrix}$$

FIG.20

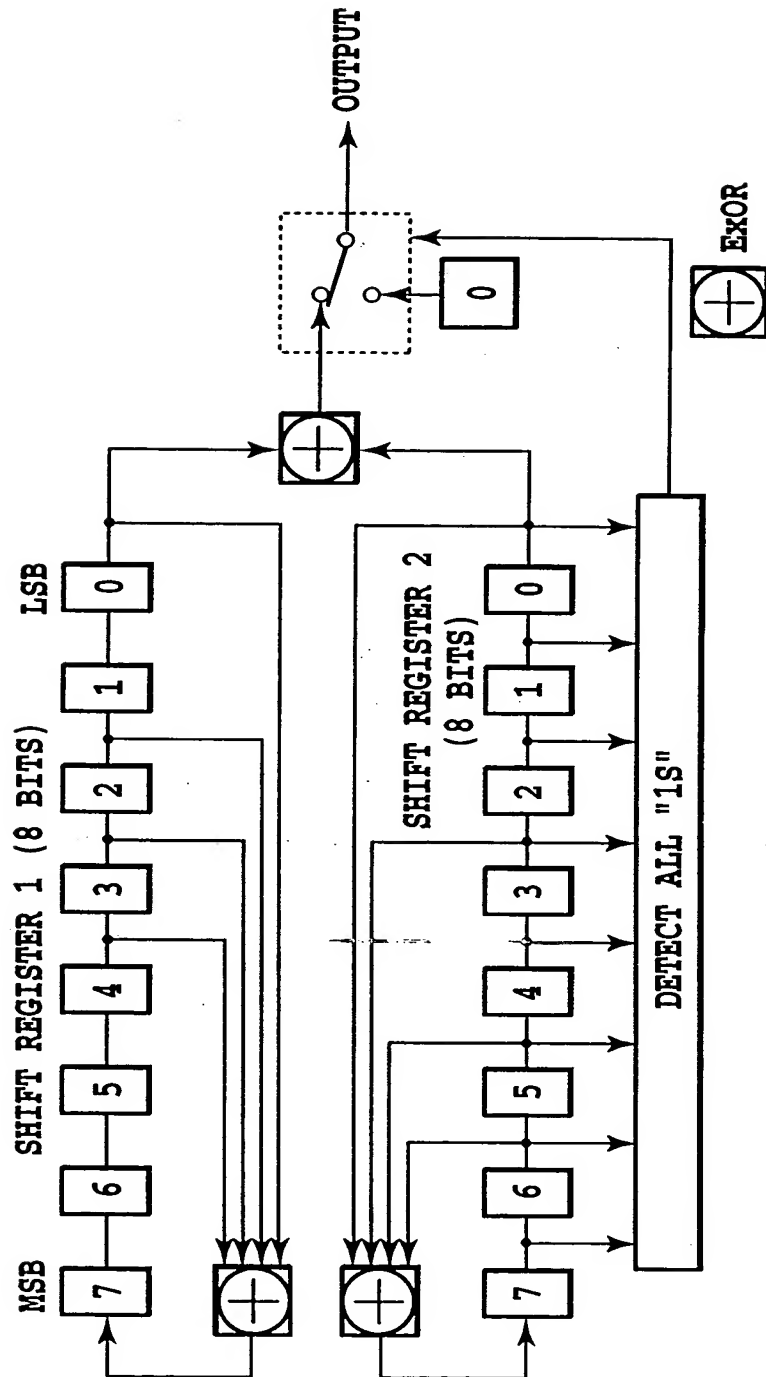


FIG.21

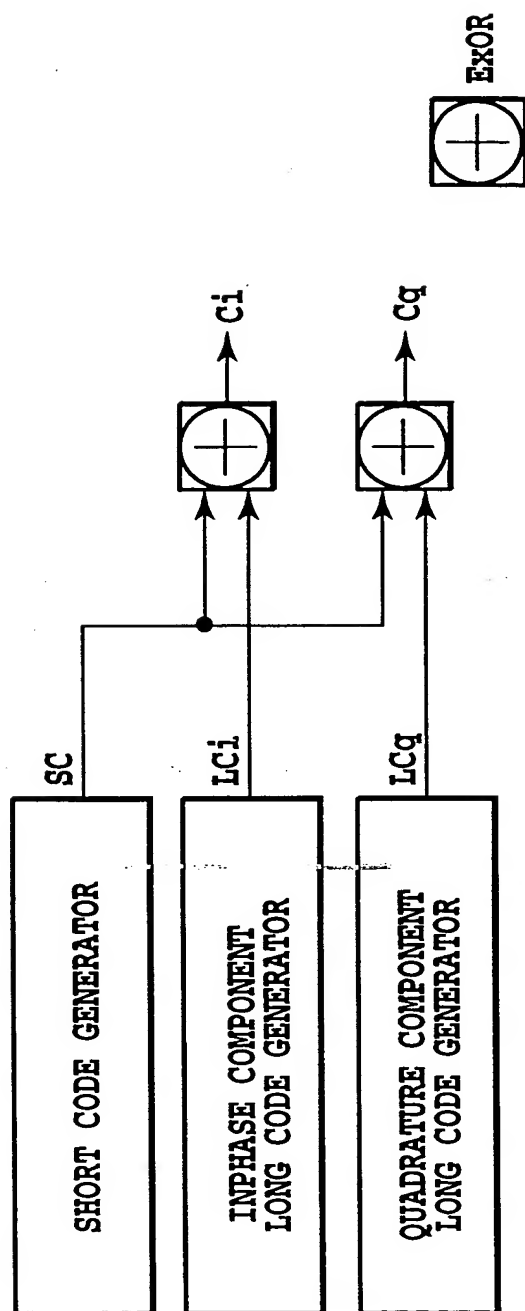


FIG.22

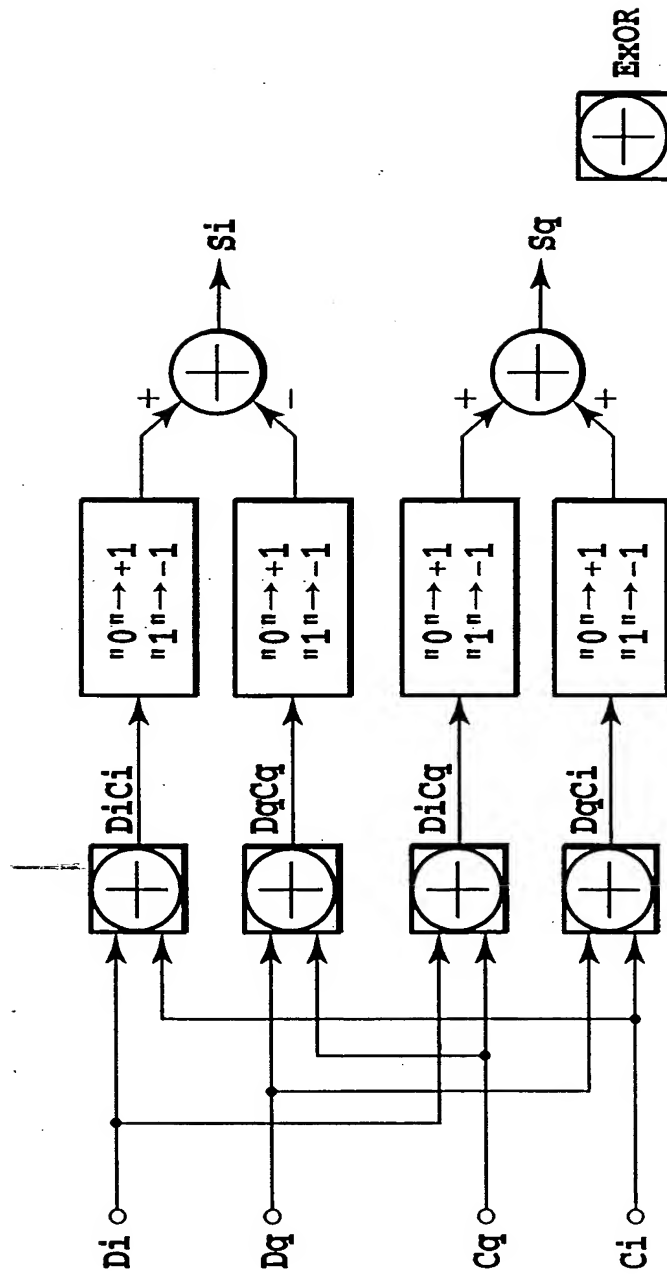


FIG.23

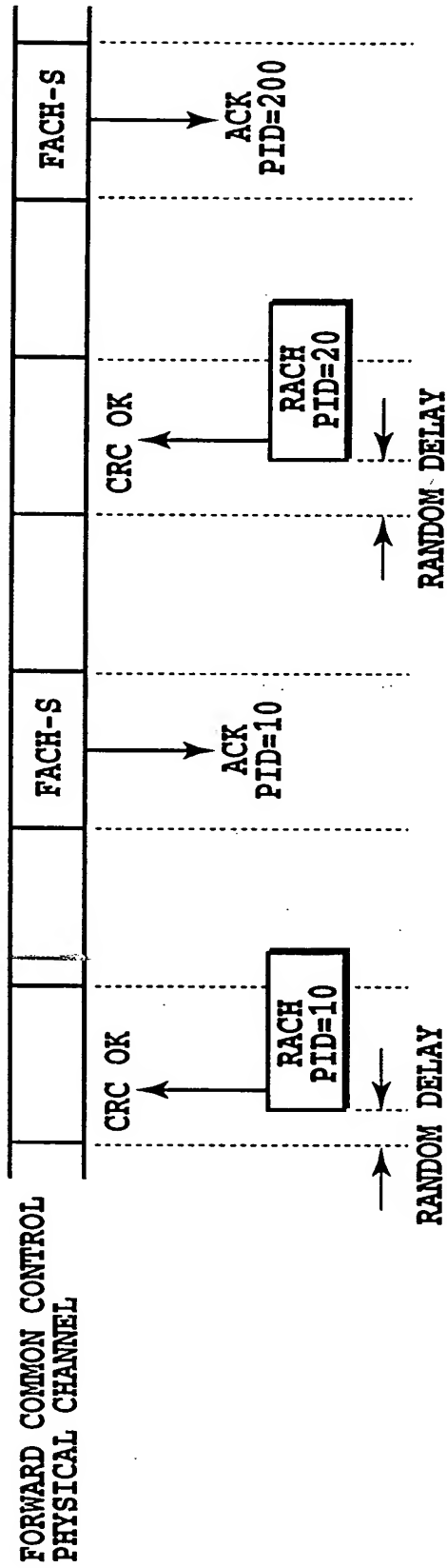


FIG.24

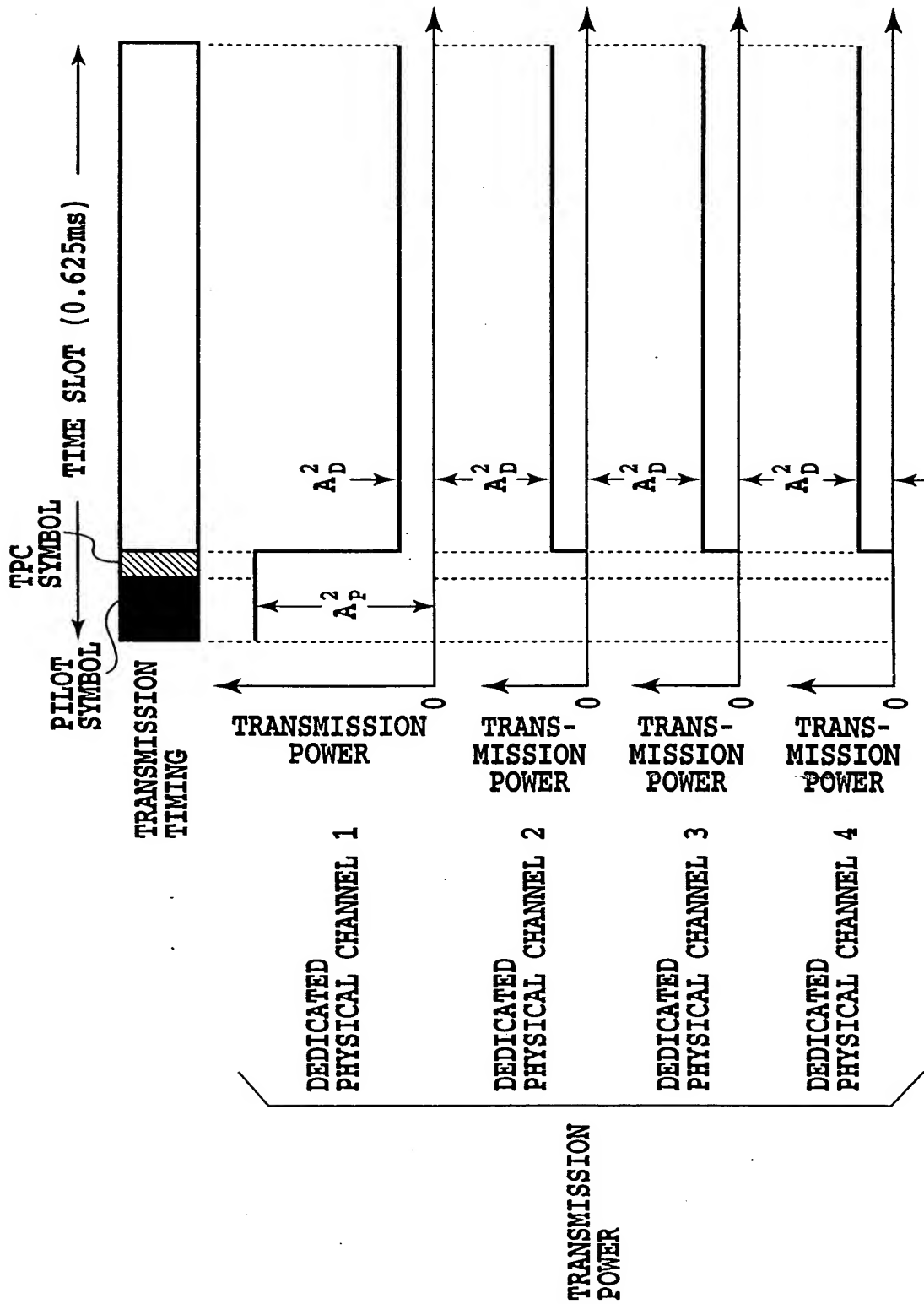


FIG.25

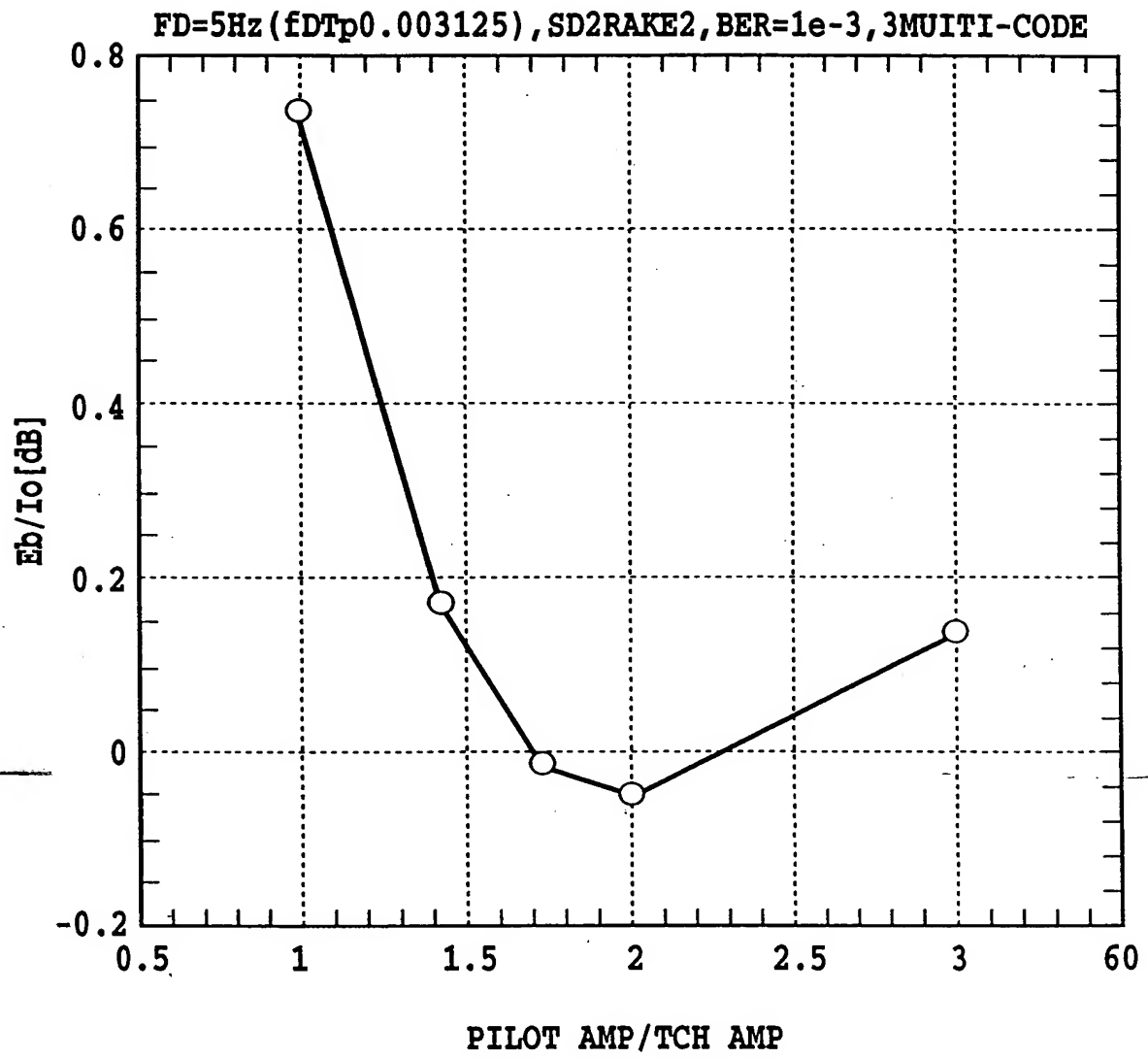


FIG.26

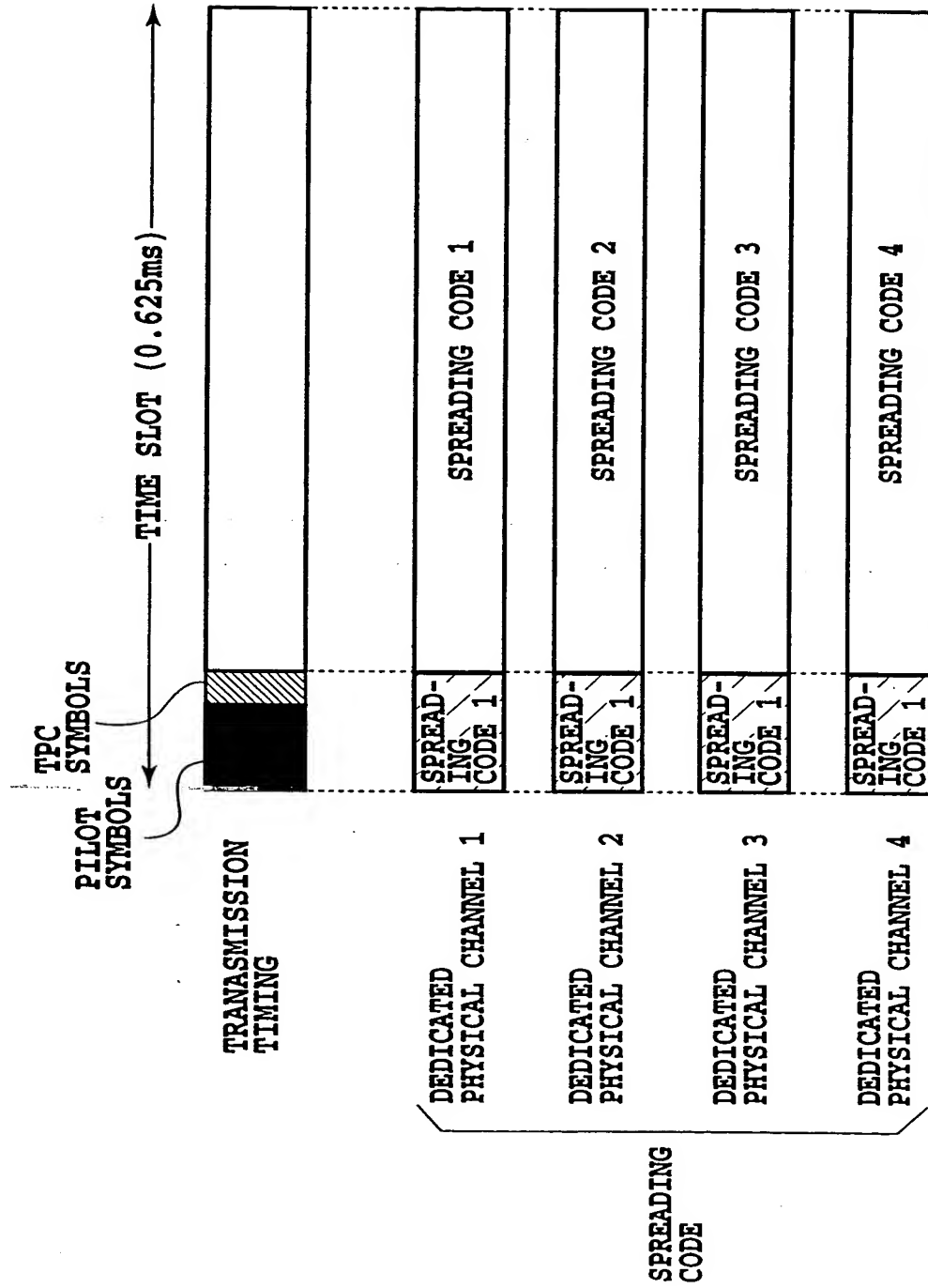


FIG.27

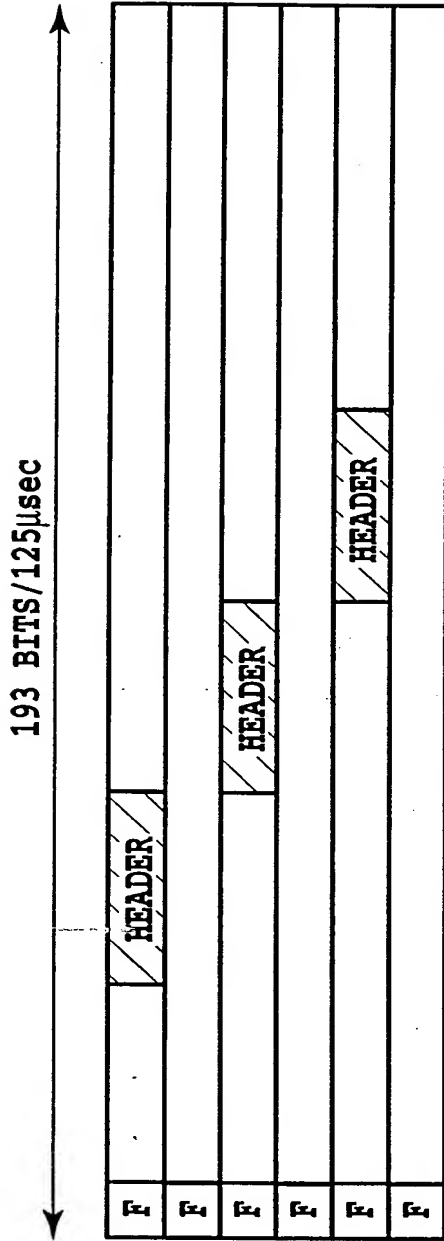
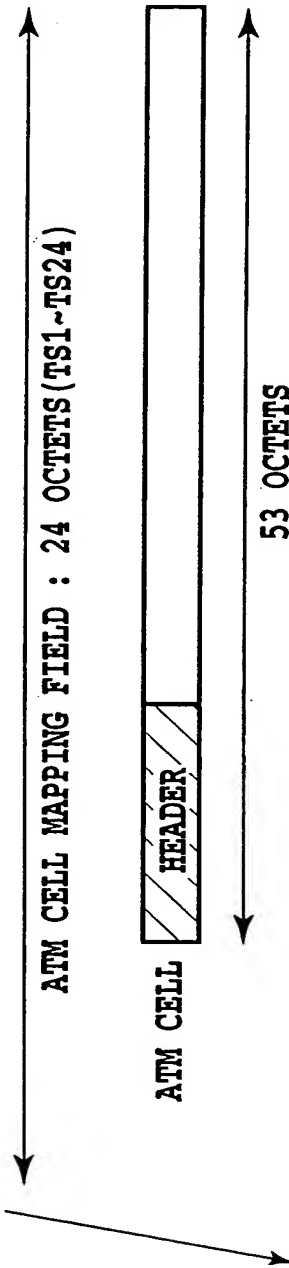


FIG.28A

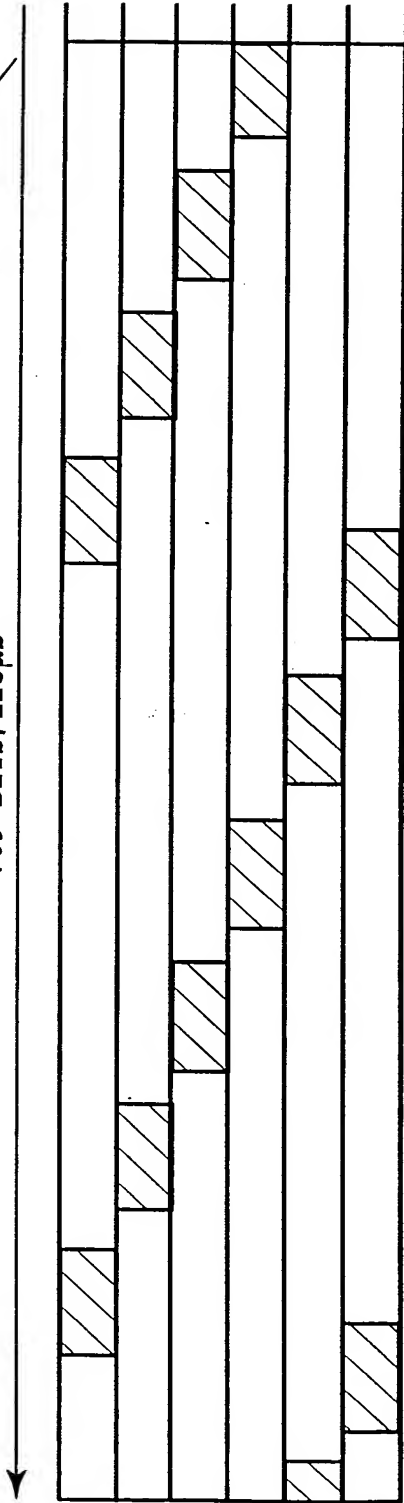


- PROVIDES F3 OAM FUNCTIONS:
- DETECTION OF LOSS FRAME ALIGNMENT
 - PERFORMANCE MONITORING(CRC-6)
 - TRANSMISSION OF FERF AND LOC
 - PERFORMANCE REPORTING

FIG.28B

TS97,98 : RESERVED FOR SIGNALLING

789 BITS/125 μ s



ATM CELL MAPPING FIELD : 96 OCTETS (TS1~TS96)

FIG.29A

PROVIDES F3 OAM FUNCTIONS:
 -DETECTION OF LOSS FRAME ALIGNMENT
 -PERFORMANCE MONITORING(CRC-5)
 -TRANSMISSION OF FERF AND LOC
 -PERFORMANCE REPORTING

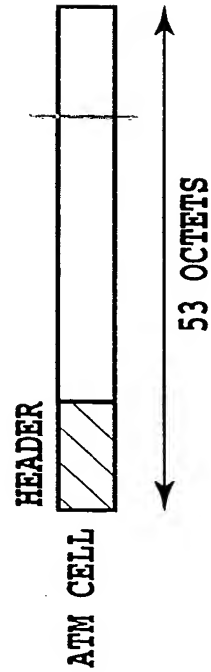
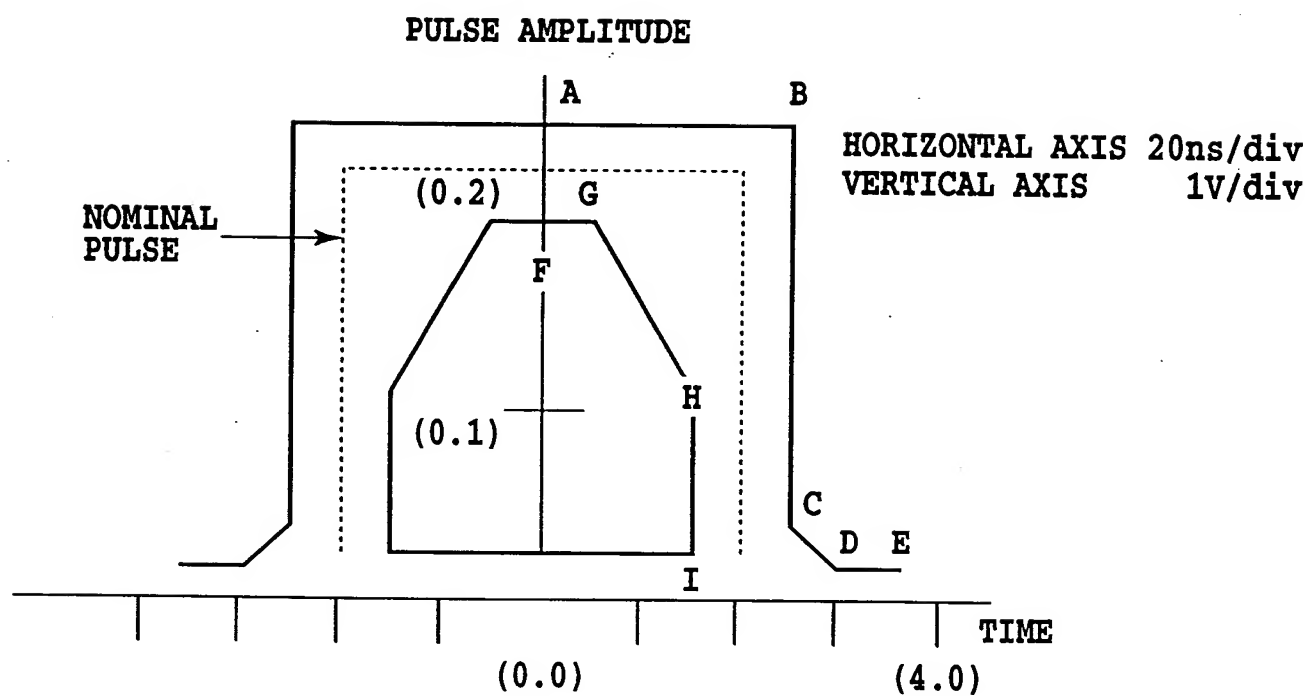


FIG.29B



**COORDINATES OF
INTERSECTION POINTS**

A : (0, 2.3)	F : (0, 1.7)
B : (2.4, 2.3)	G : (0.4, 1.7)
C : (2.4, 1.0)	H : (1.6, 0.9)
D : (3.2, 0.3)	I : (1.6, 0.3)
E : (4.0, 0.3)	

FIG.30

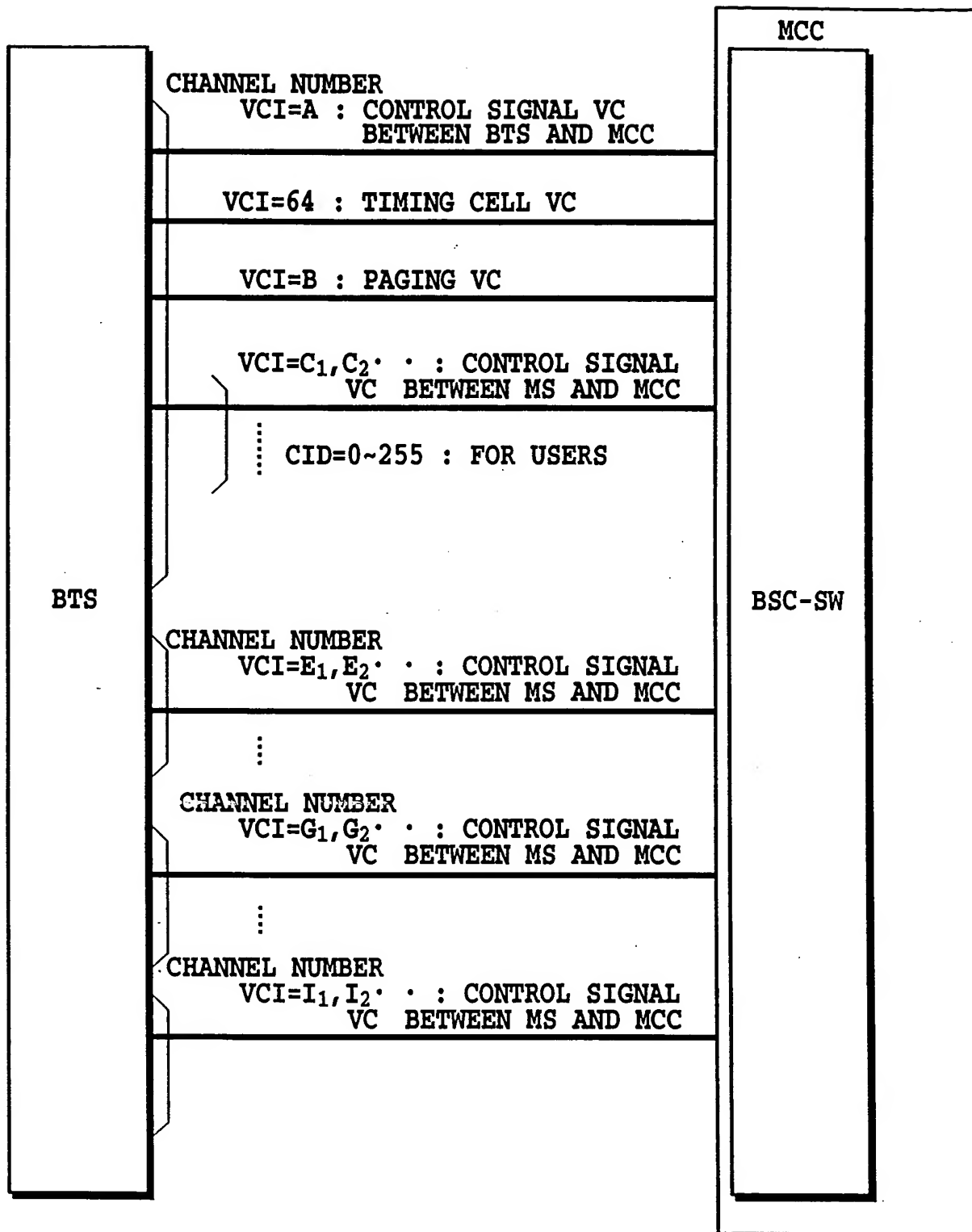


FIG.31

	BIT 8	0	
OCT 1		00H	CELL HEADER
OCT 2		00H	
OCT 3		00H	
OCT 4		01H	
OCT 5		52H	
OCT 6		6AH	
OCT 1		6AH	

FIG.32

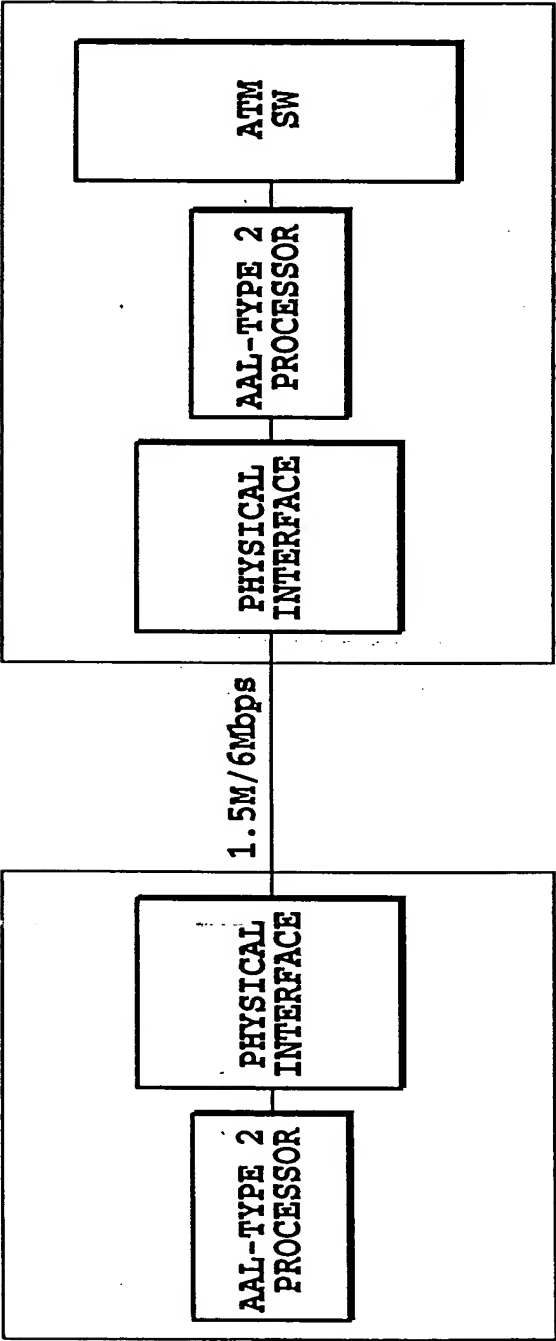


FIG.33A

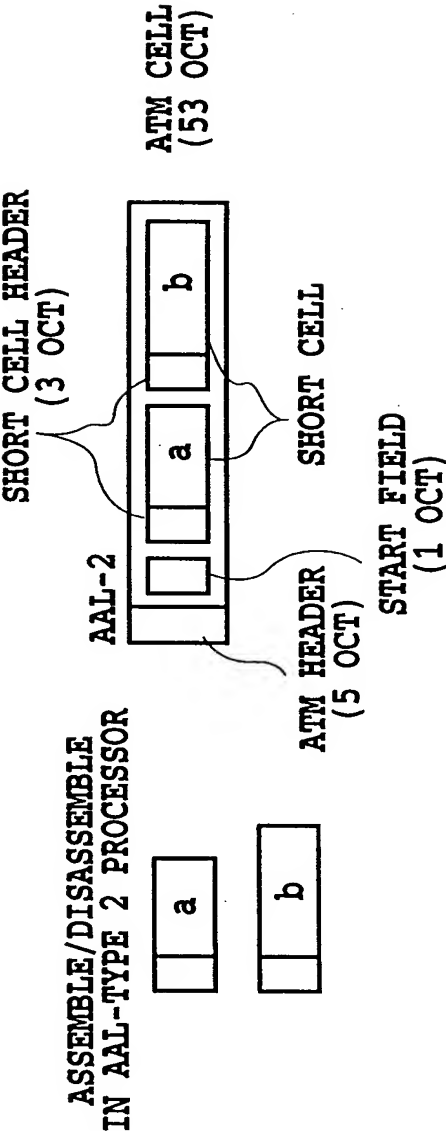


FIG.33B

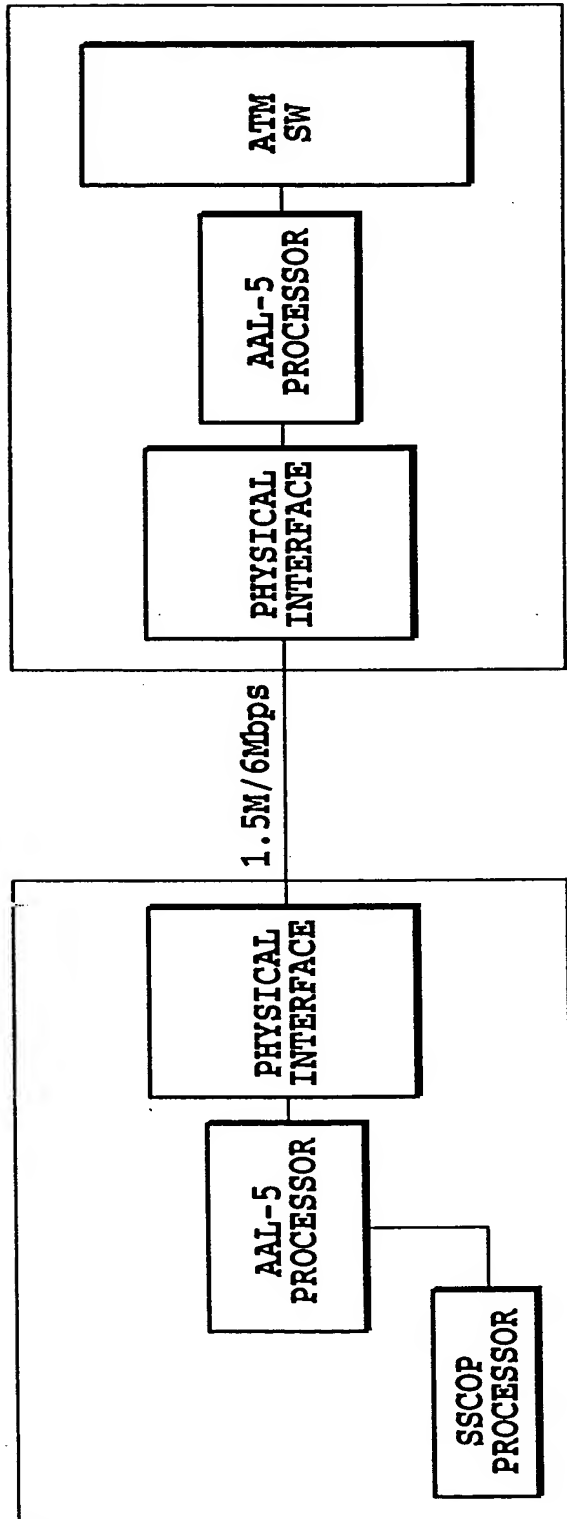


FIG.34A

ASSEMBLE/DISASSEMBLE
IN AAL-5 PROCESSOR

AAL-5

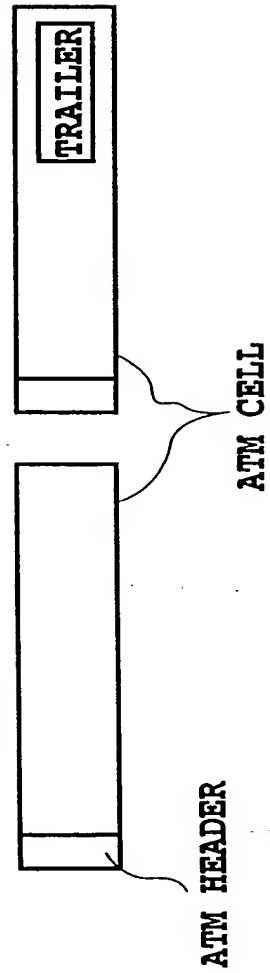
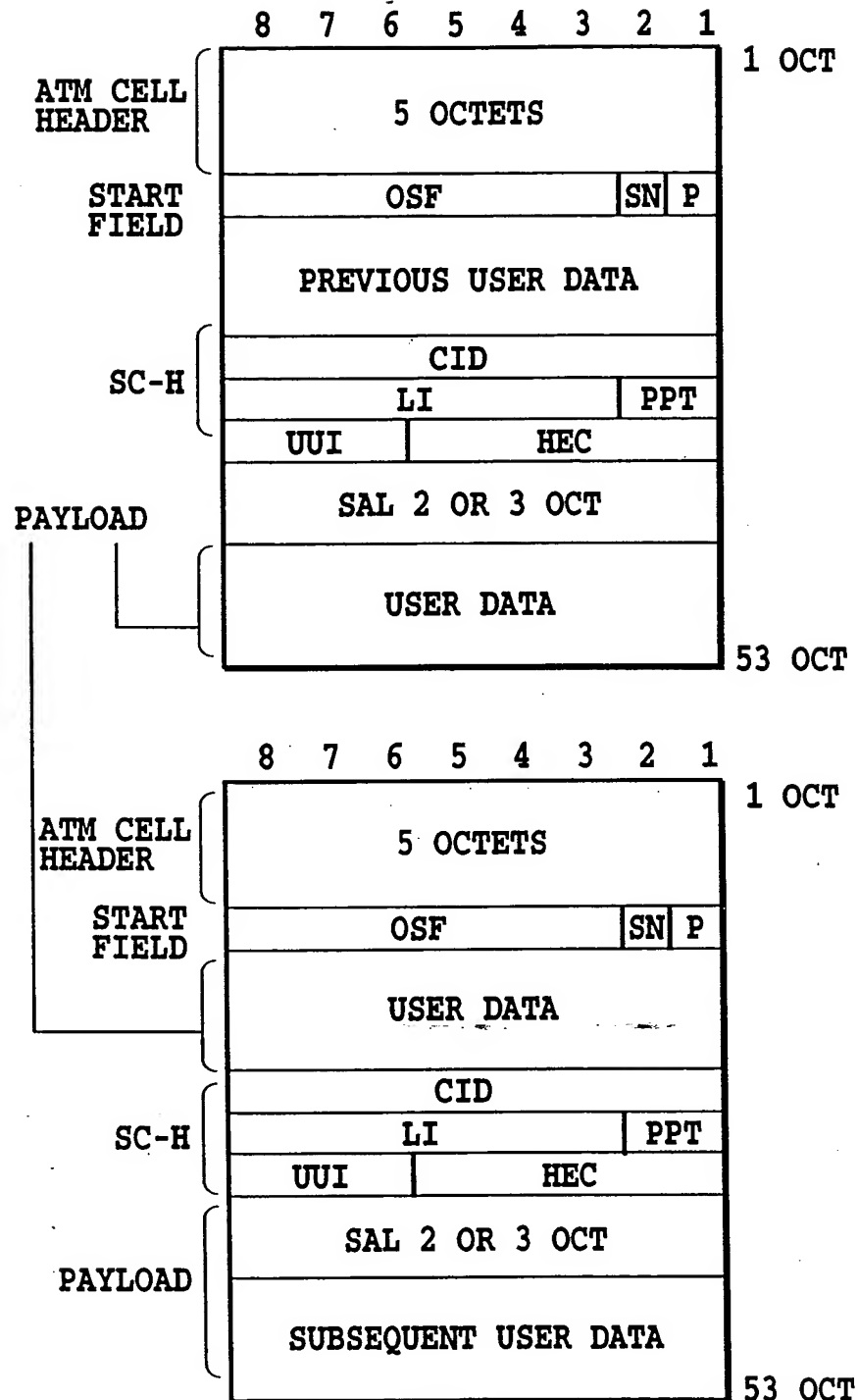


FIG.34B

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- START FIELD (1 OCTET)
- OSF: OFFSET FIELD

FIG.35

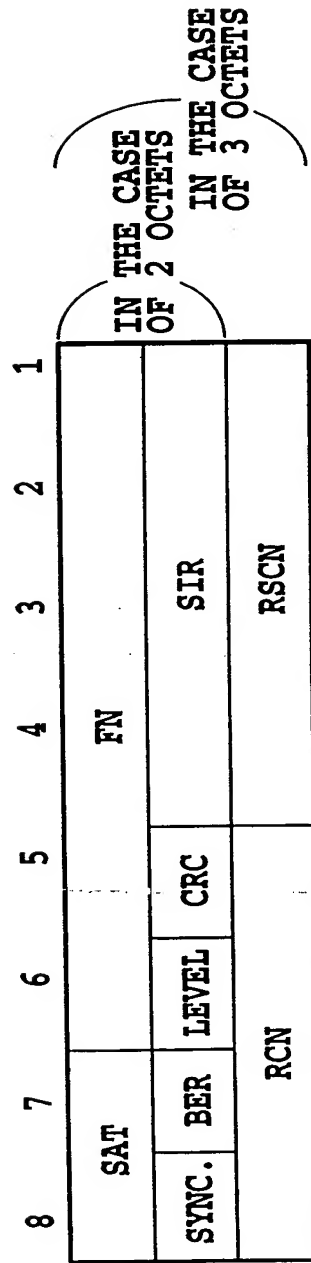
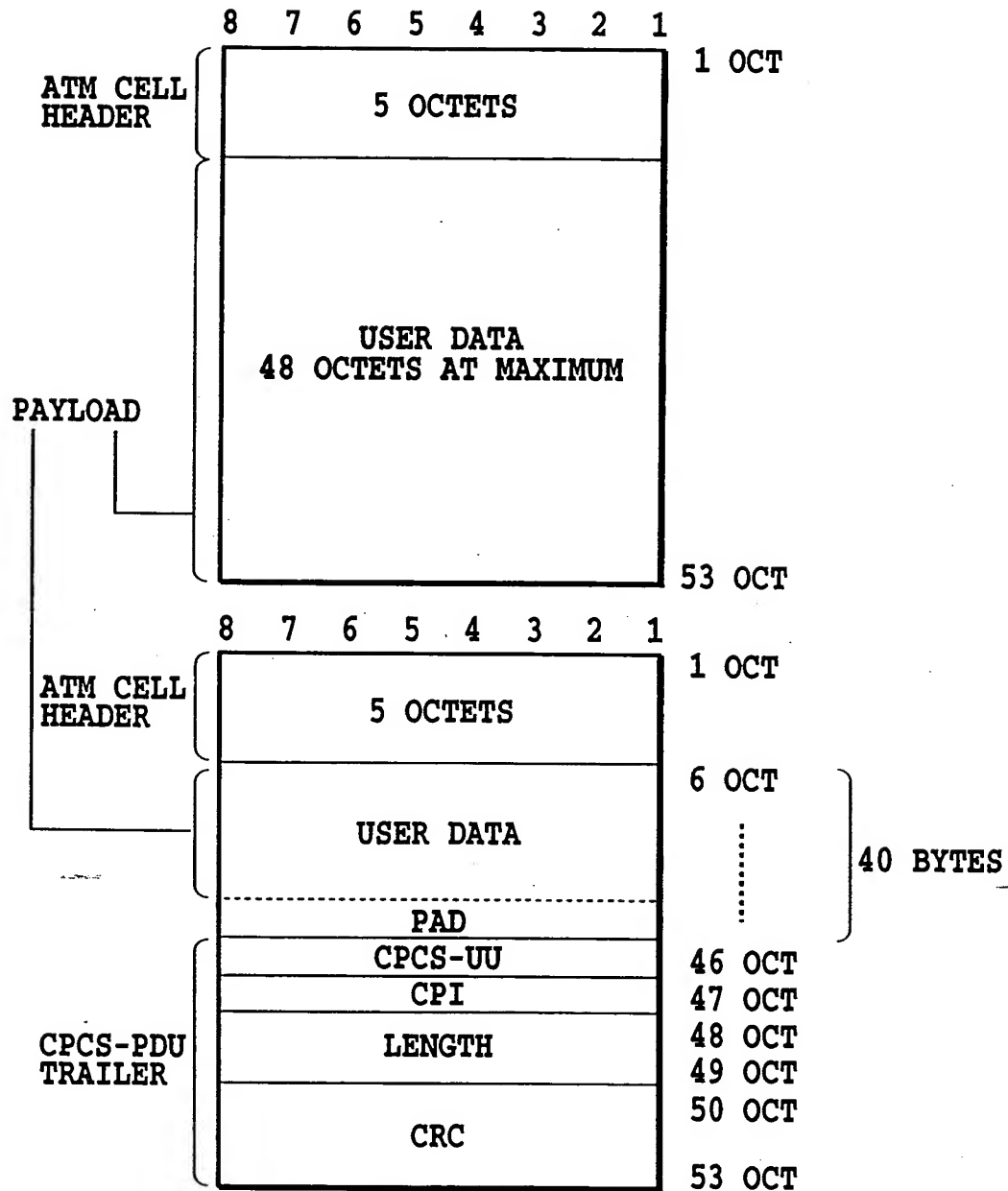


FIG.36



PAD AND CPCS-PDU TRAILER ARE
ADDED TO THE LAST CELL

FIG.37

FIG.38

FIG.38A

FIG.38B

ATM HEADER

VPI		
VCI		
PTI		CLP
HEC		
MESSAGE ID		
NUMBER OF TIMES OF CORRECTIONS (1 OCTET)		
CORRECTION RANGE (1 OCTET)		
TRANSMISSION DELAY (2 OCTET)		
SF TIME INFORMATION (RECEPTION) (MASTER SIDE) (2 OCTETS)		
SF TIME INFORMATION (TRANSMISSION) (MASTER SIDE) (2 OCTETS)		

FIG.38A

SF TIME INFORMATION (RECEPTION) (SLAVE SIDE) (2 OCTETS)
SF TIME INFORMATION (TRANSMISSION) (SLAVE SIDE) (2 OCTETS)
SF PHASE SHIFT VALUE (2 OCTETS)
LC COUNTER INFORMATION (RECEPTION) (MASTER SIDE) (3 OCTETS)
LC COUNTER INFORMATION (TRANSMISSION) (MASTER SIDE) (3 OCTETS)
LC COUNTER INFORMATION (RECEPTION) (SLAVE SIDE) (3 OCTETS)
LC COUNTER INFORMATION (TRANSMISSION) (SLAVE SIDE) (3 OCTETS)
LC COUNTER SHIFT VALUE (3 OCTETS)
UNUSED (6A (h))
000000
CRC-10

FIG.38B

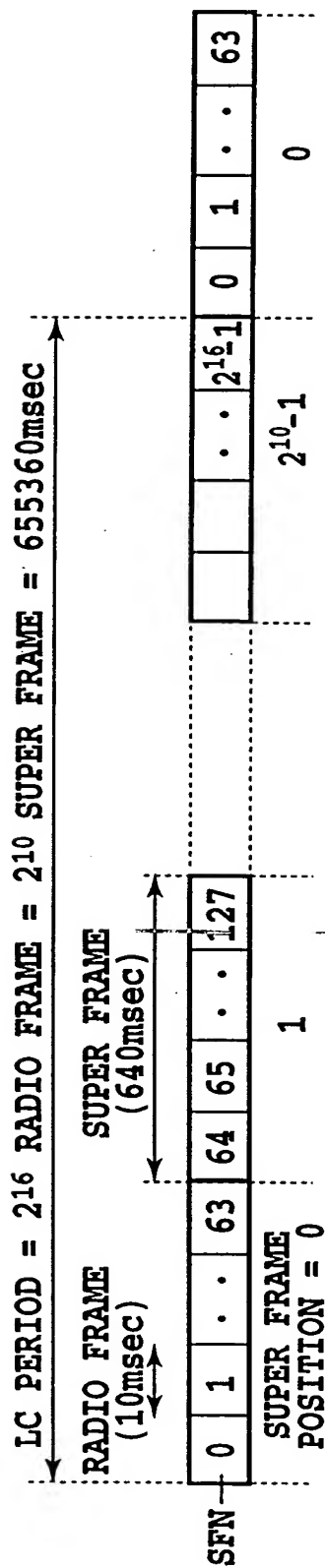


FIG.39

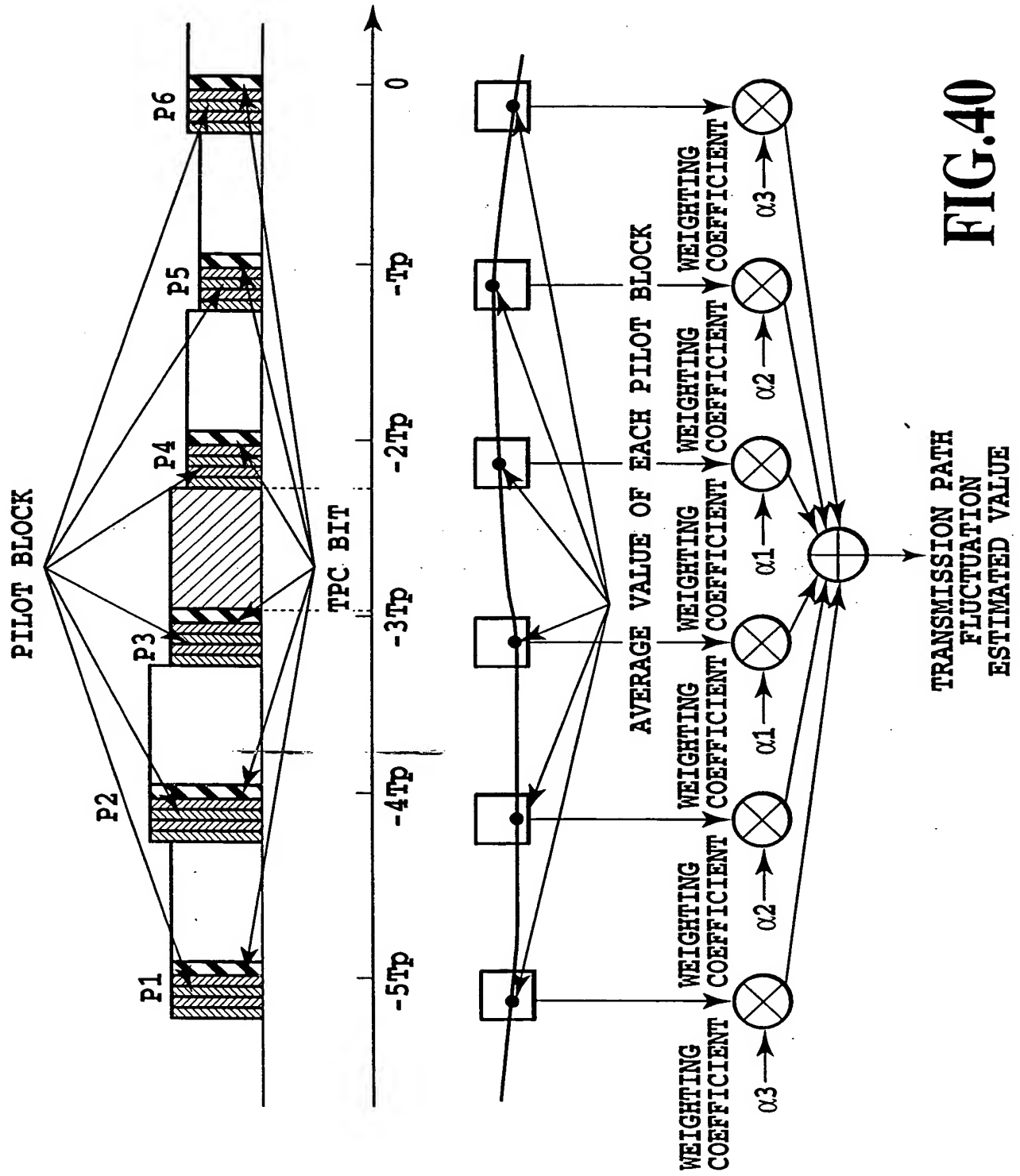
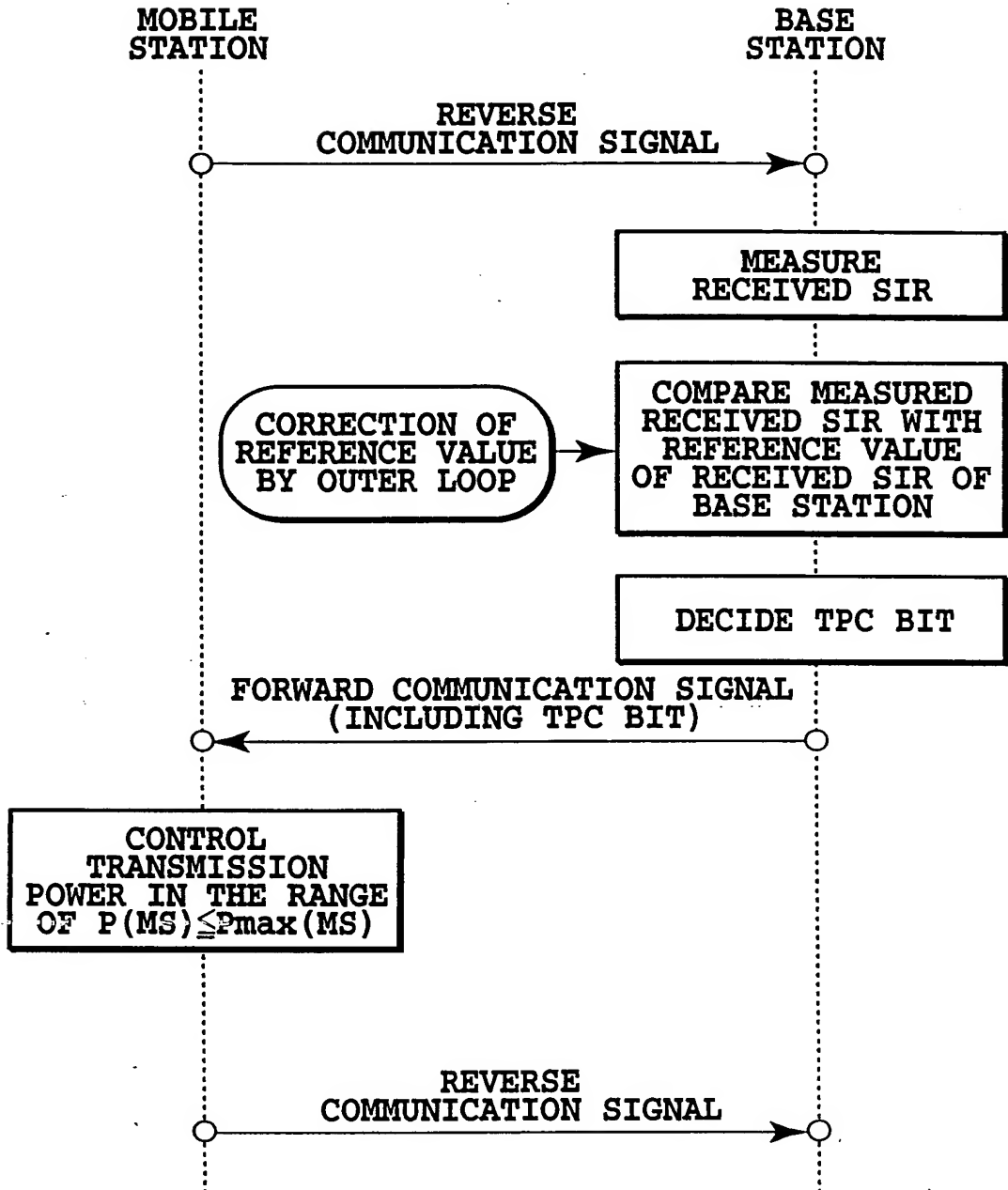


FIG.40

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REVERSE CHANNEL



$P(MS)$. . . REVERSE TRANSMISSION POWER
 $P_{max}(MS)$. . . MAXIMUM REVERSE TRANSMISSION POWER
 $P(BS)$. . . FORWARD TRANSMISSION POWER
 $P_{max}(BS)$. . . MAXIMUM FORWARD TRANSMISSION POWER
 $P_{min}(BS)$. . . MINIMUM FORWARD TRANSMISSION POWER

FIG.41A

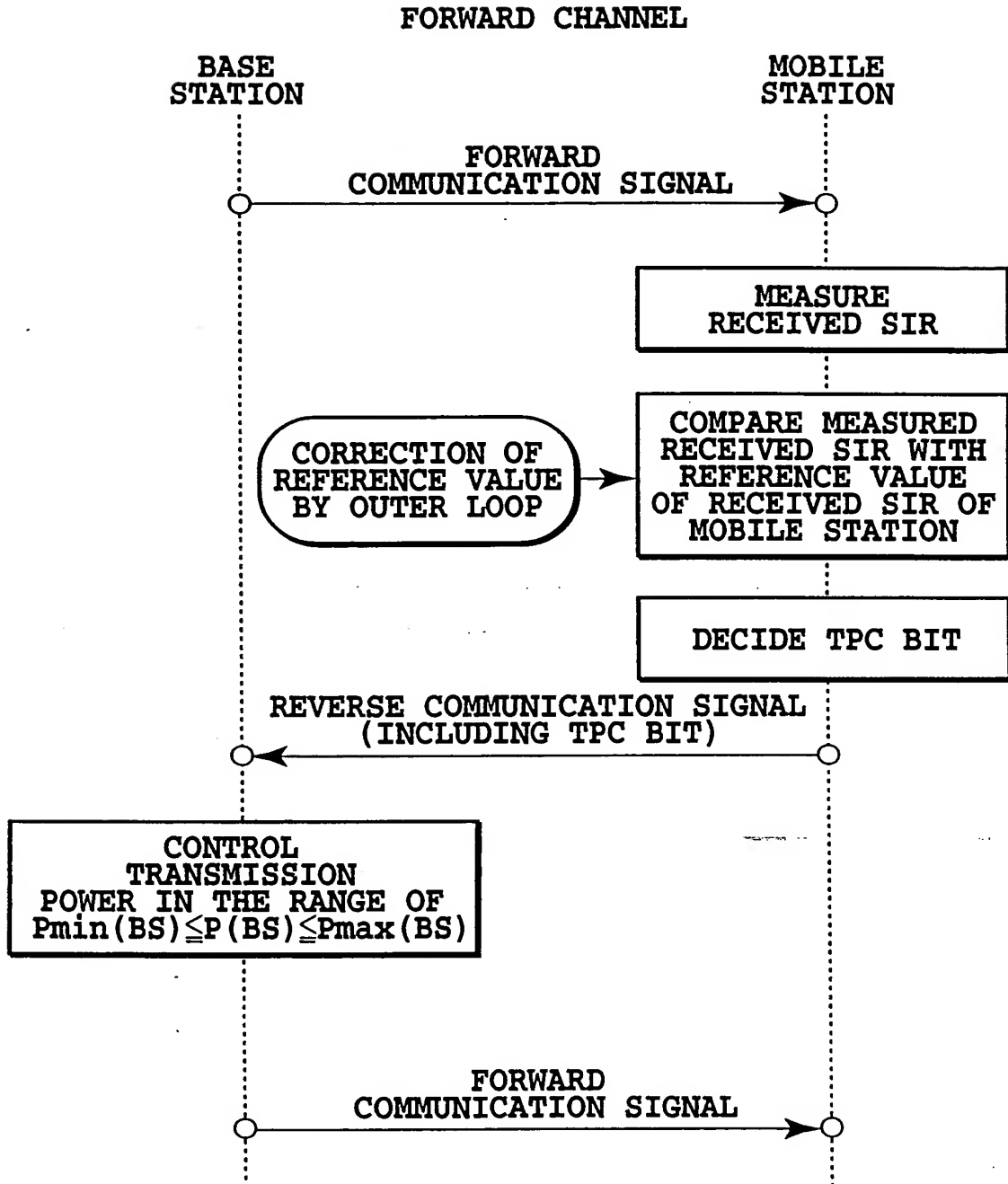


FIG.41B

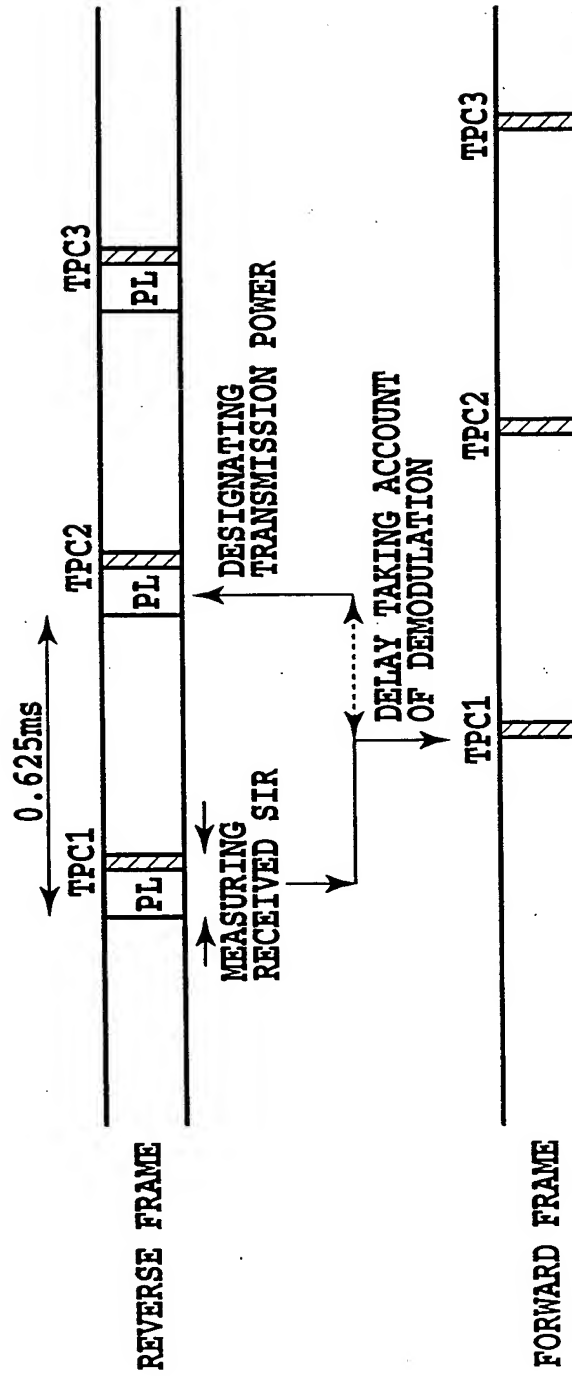


FIG.42

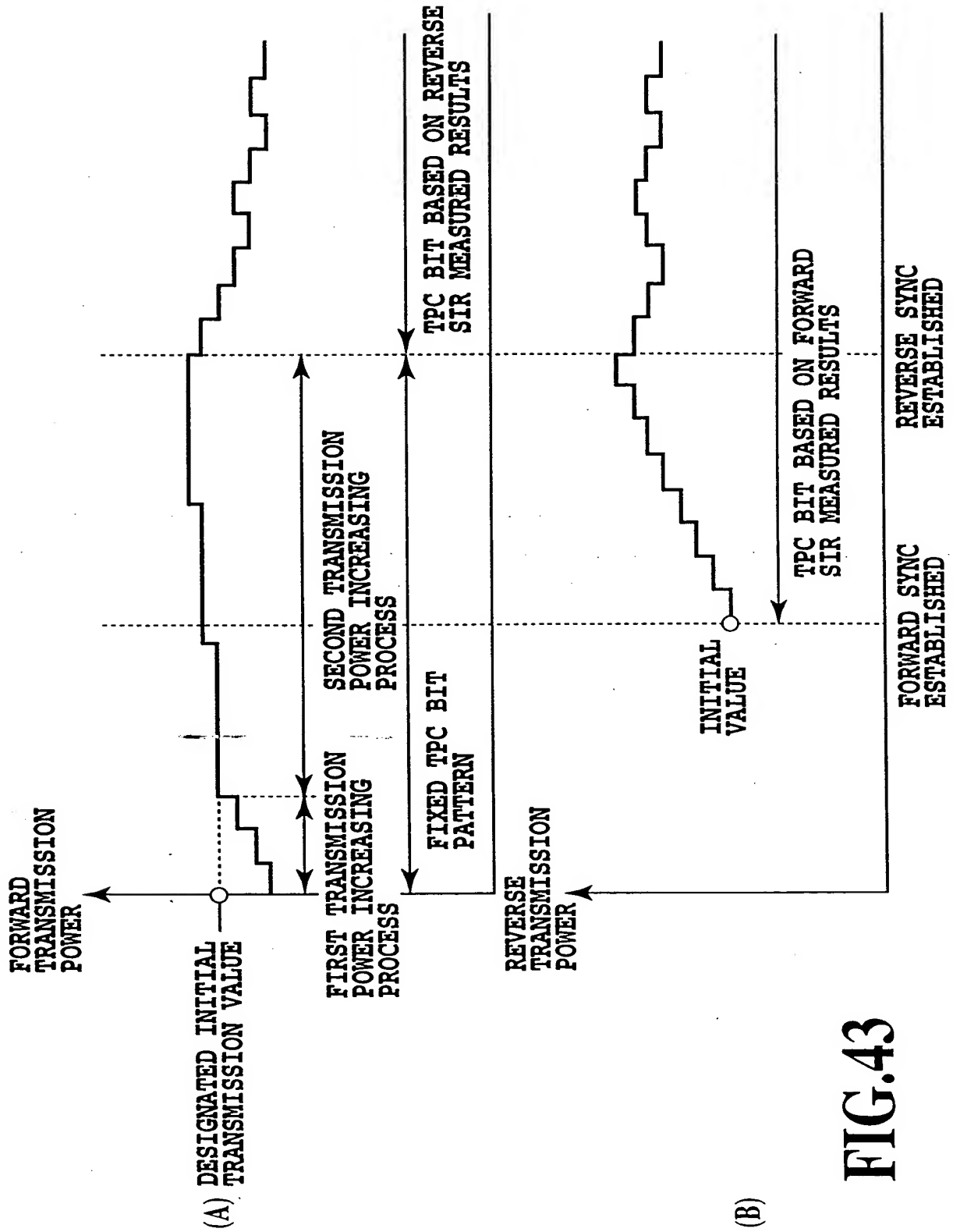


FIG. 43

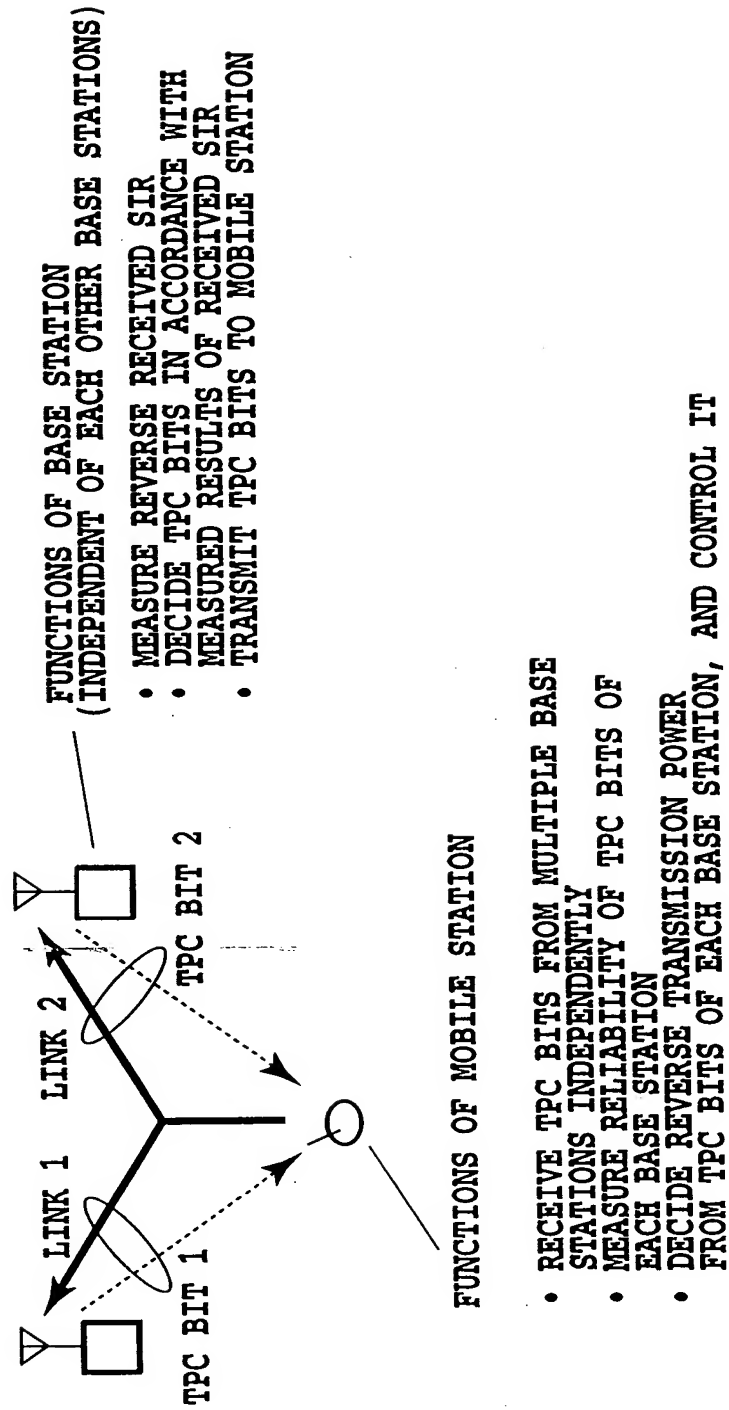


FIG.44

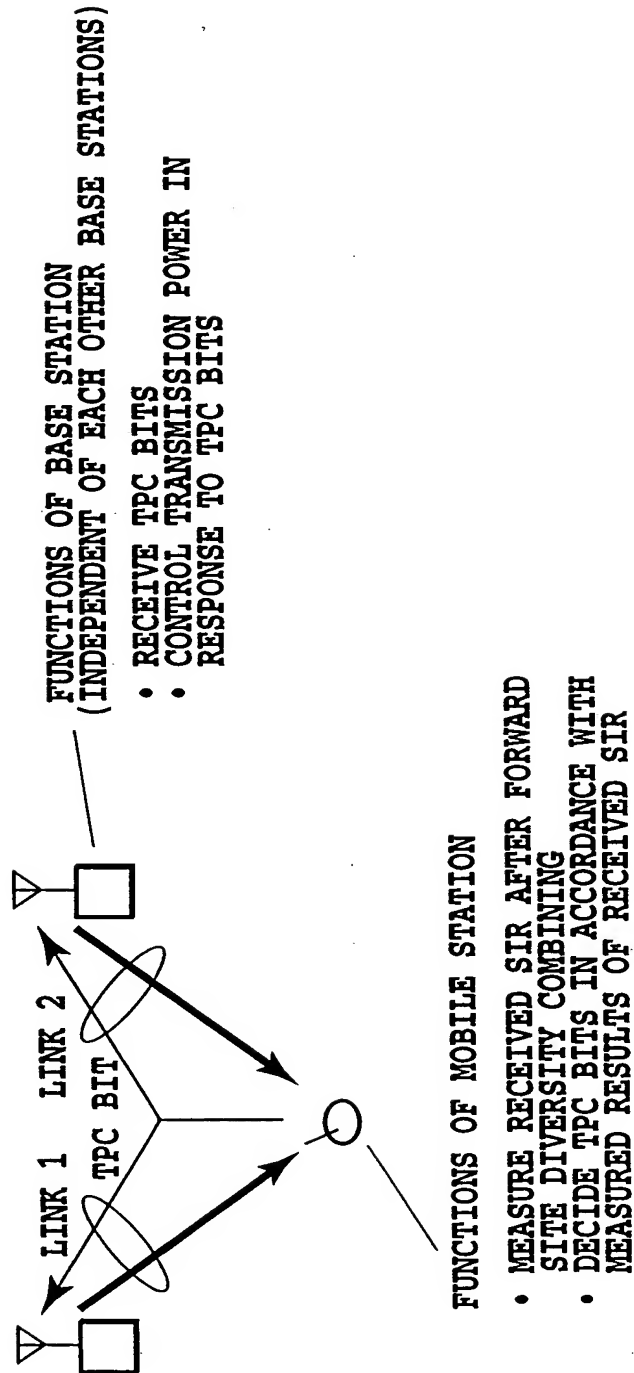


FIG.45

FIG.46

FIG.46A

FIG.46B

BASE STATION

START FORWARD DEDICATED CHANNEL TRANSMISSION

- INCREASE TRANSMISSION POWER GRADUALLY SO THAT OTHER USERS ARE UNAFFECTED (FIRST TRANSMISSION POWER INCREASING PROCESS)
- INFORMATION BITS CONSIST OF IDLE PATTERN (SEE, 4.1.10)
- TPC BITS ARE CONTROLLED IN ACCORDANCE WITH GRADUALLY INCREASING FIXED PATTERN

MOBILE STATION

START FORWARD SYNC ESTABLISHMENT

CHIP SYNC ESTABLISHMENT

DECIDE FRAME ALIGNMENT
(WITH DETECTING SW)

FORWARD SYNC IS ESTABLISHED

START REVERSE DEDICATED CHANNEL TRANSMISSION

- INFORMATION BITS CONSIST OF IDLE PATTERN (SEE, 4.1.10)
- TRANSMISSION POWER IS DECIDED ACCORDING TO TPC BITS TRANSMITTED FROM BASE STATION
- TPC BITS ARE DECIDED IN ACCORDANCE WITH MEASURED RESULTS OF FORWARD SIR

START REVERSE SYNC ESTABLISHMENT

CHIP SYNC ESTABLISHMENT

DECIDE FRAME ALIGNMENT
(WITH DETECTING SW)

REVERSE SYNC IS ESTABLISHED

DECIDE TPC BIT IN RESPONSE TO MEASURED RESULT OF REVERSE SIR

FIG.46A

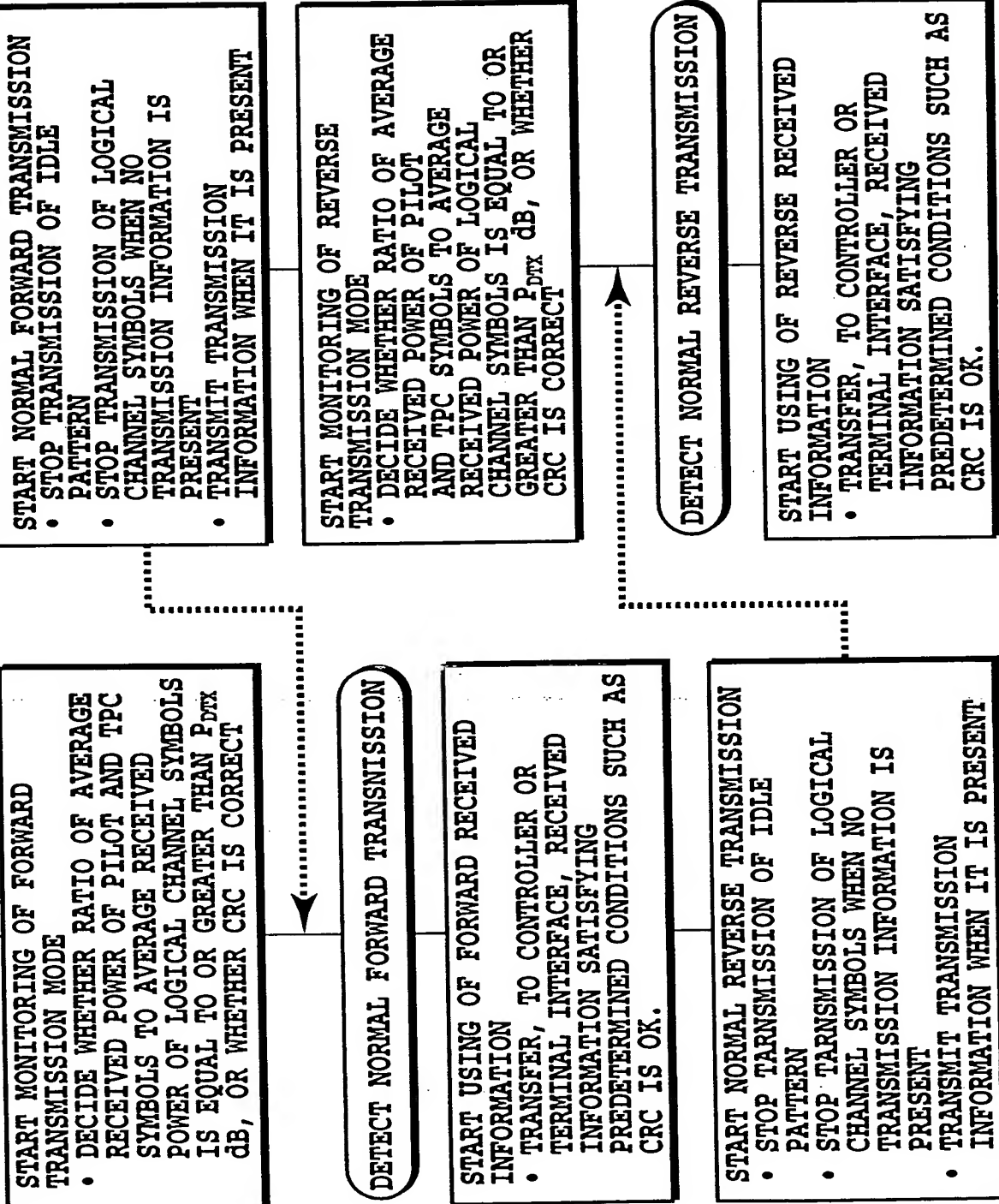


FIG. 46B

1994



FIG.47

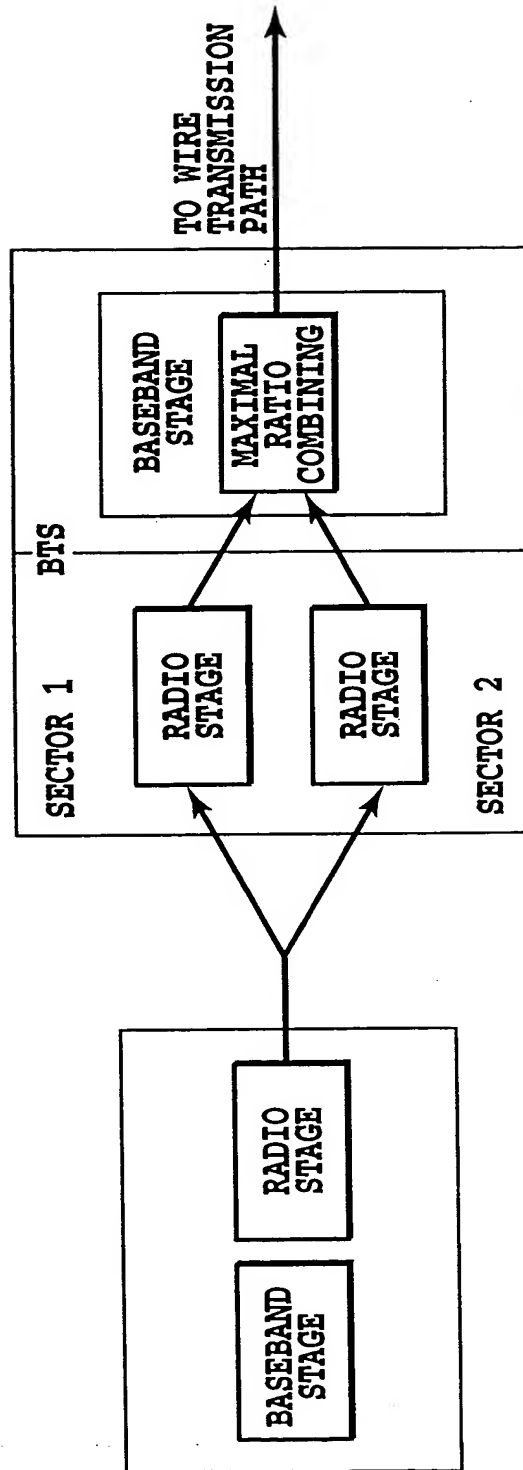
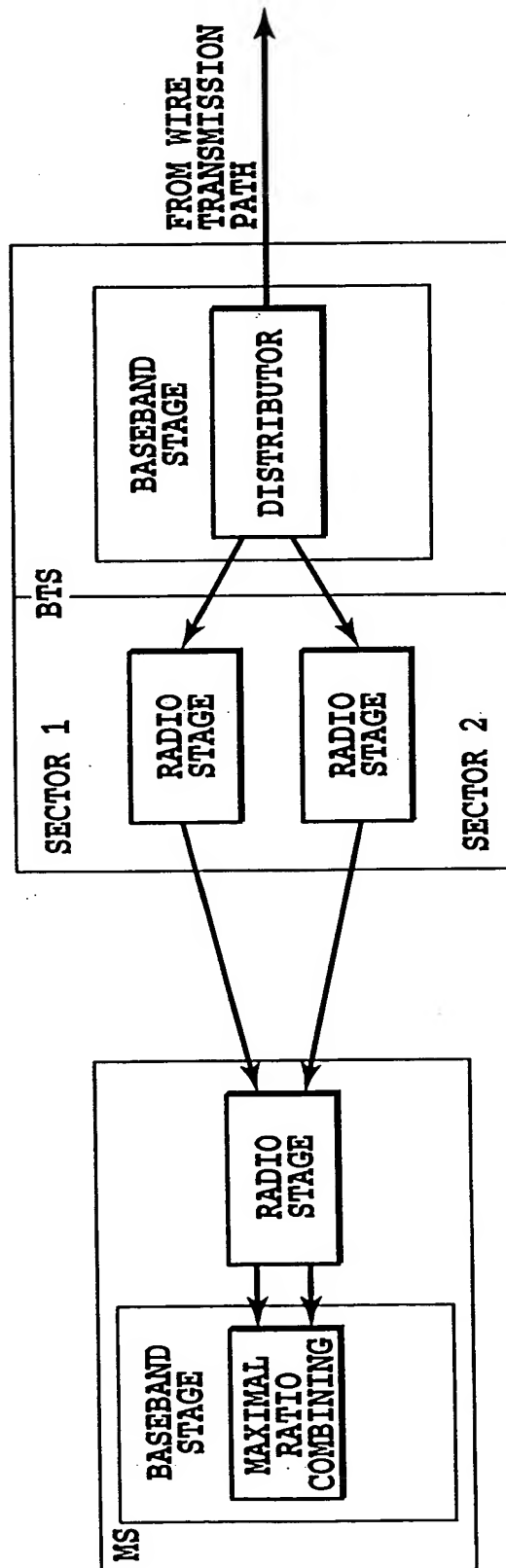
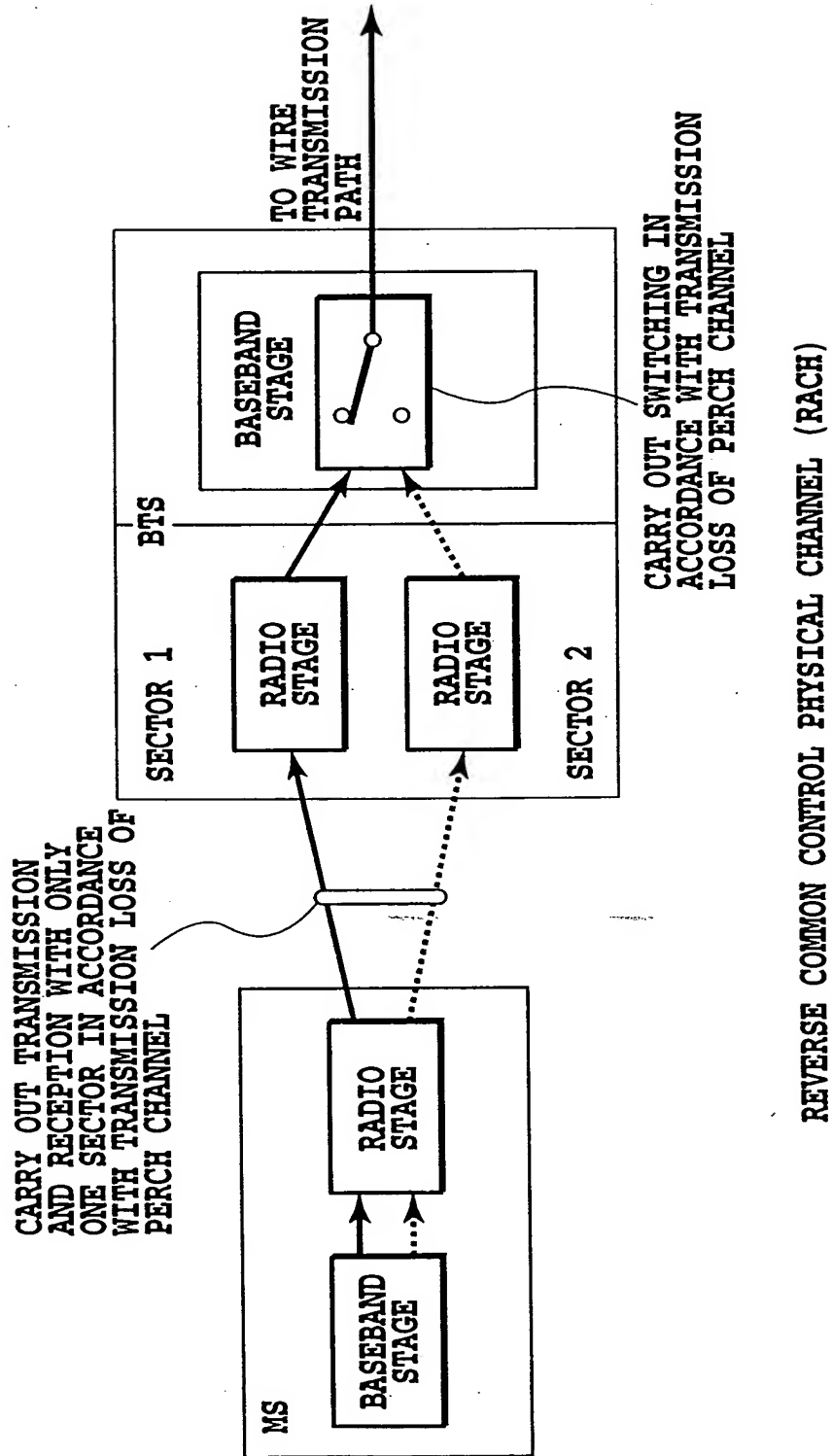


FIG. 48



FORWARD DEDICATED PHYSICAL CHANNEL (UPCH)

FIG.49



REVERSE COMMON CONTROL PHYSICAL CHANNEL (RACH)

FIG.50

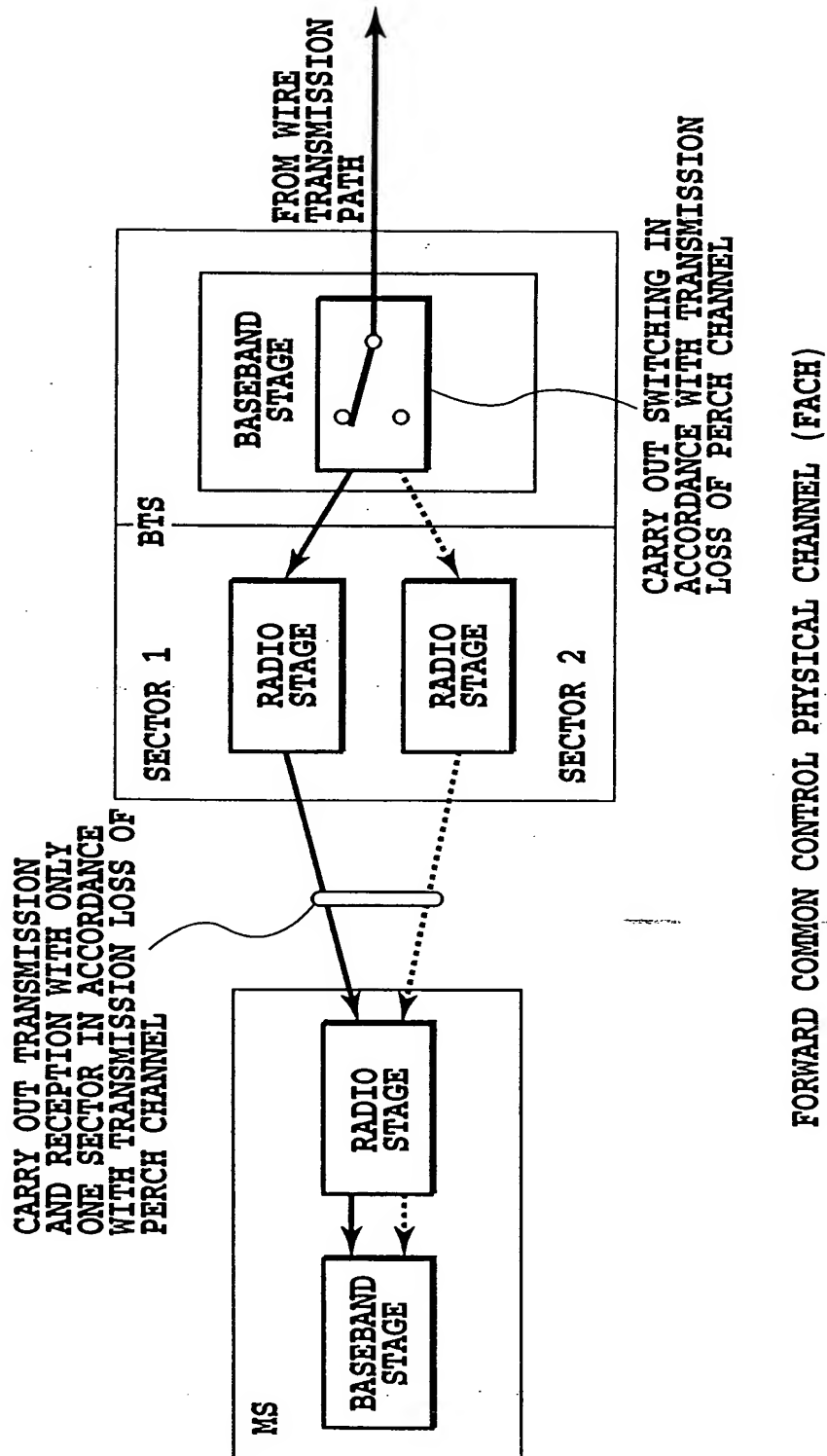
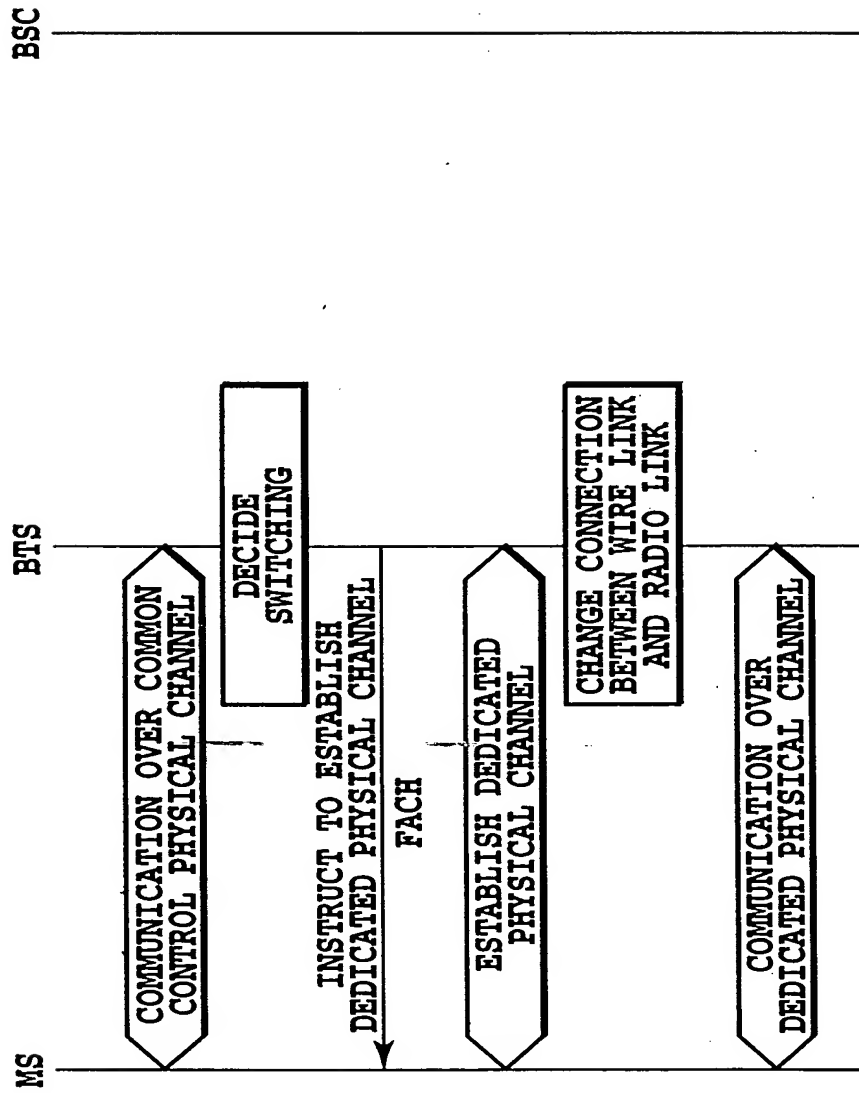


FIG.51



FROM COMMON CONTROL PHYSICAL CHANNEL
TO DEDICATED PHYSICAL CHANNEL

FIG.52

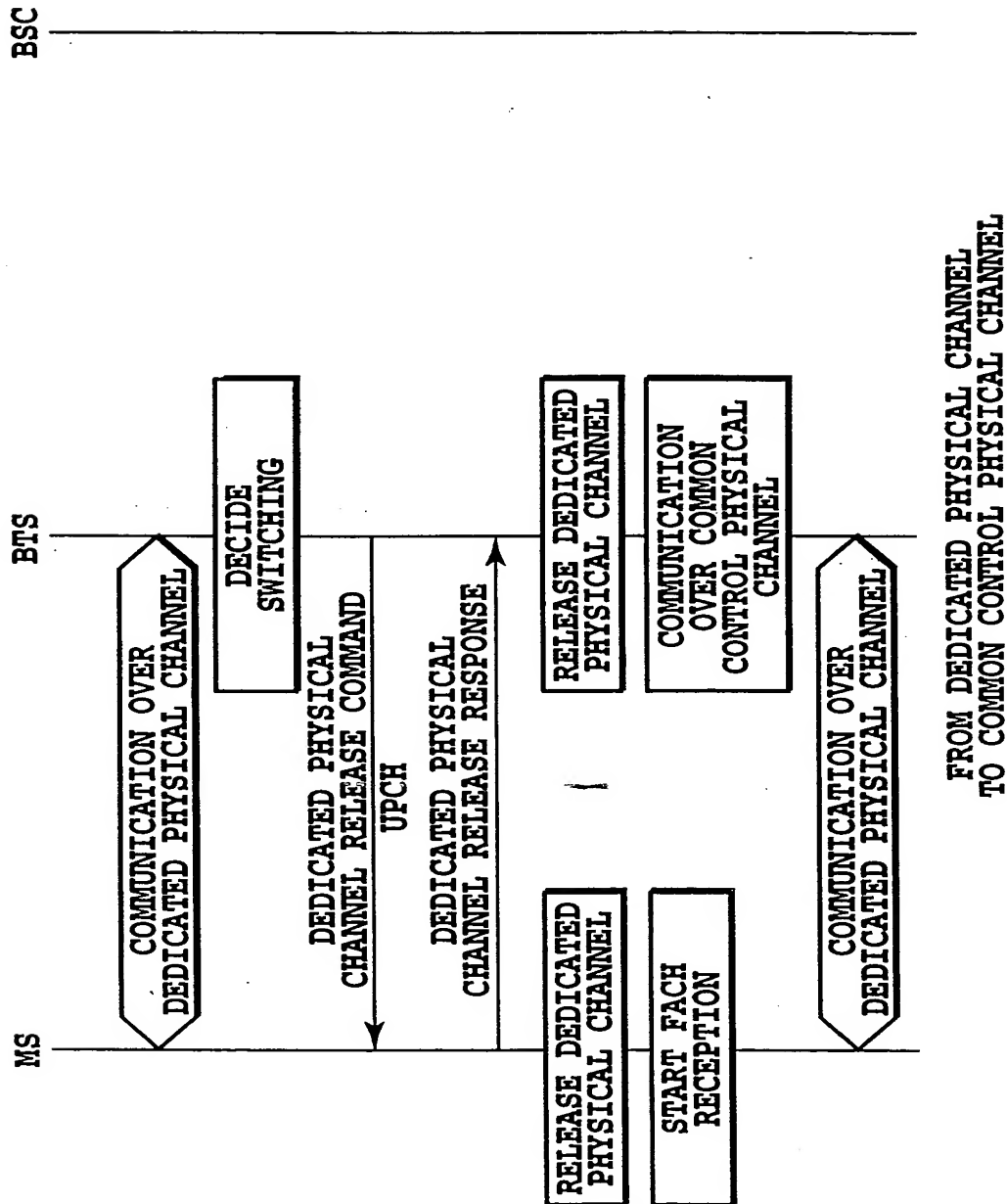


FIG.53

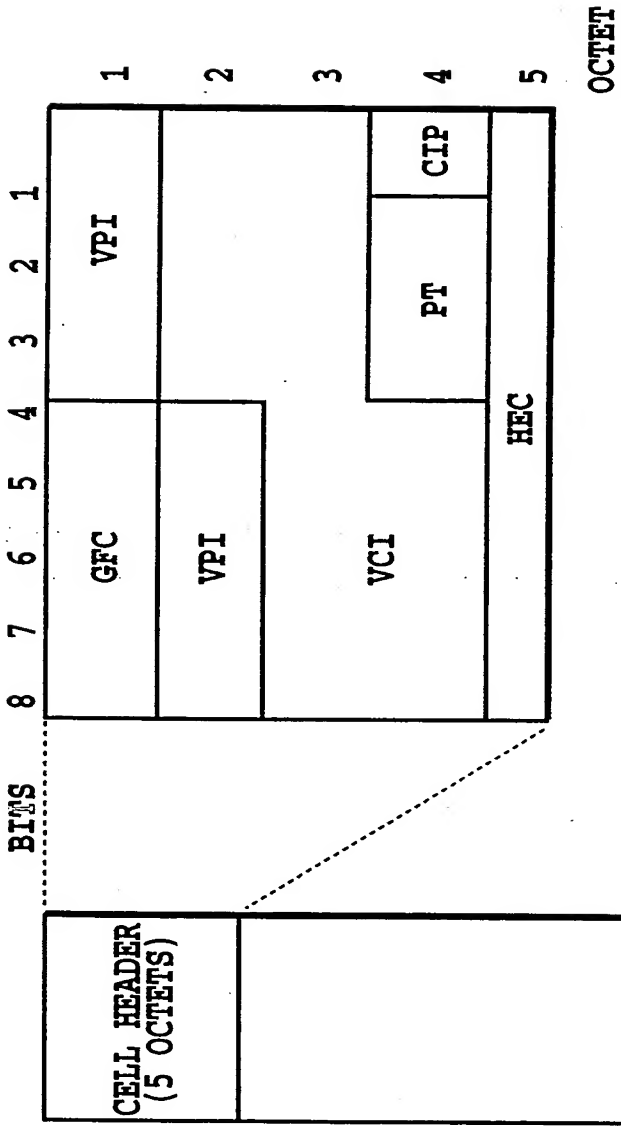


FIG.54

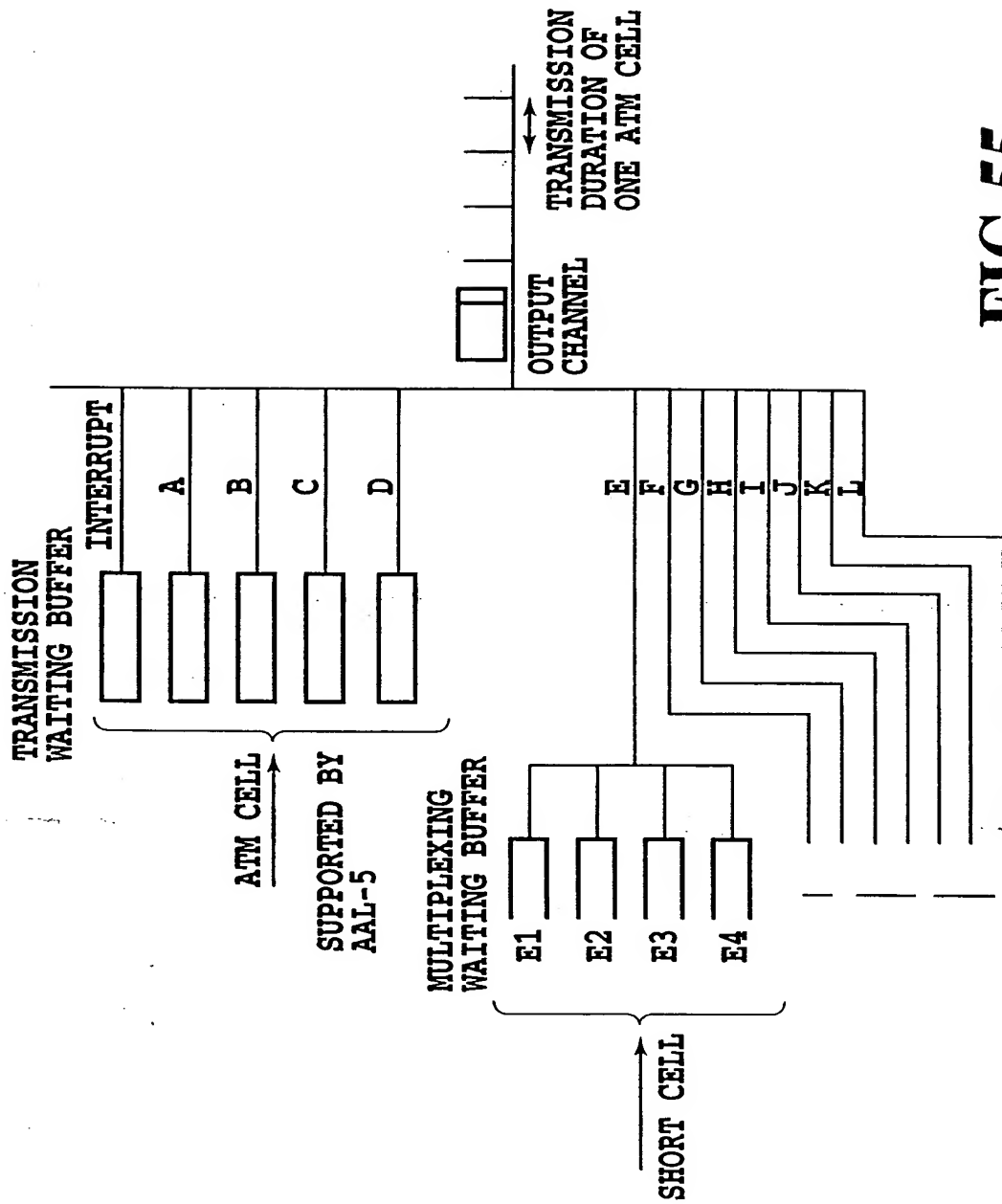


FIG.55

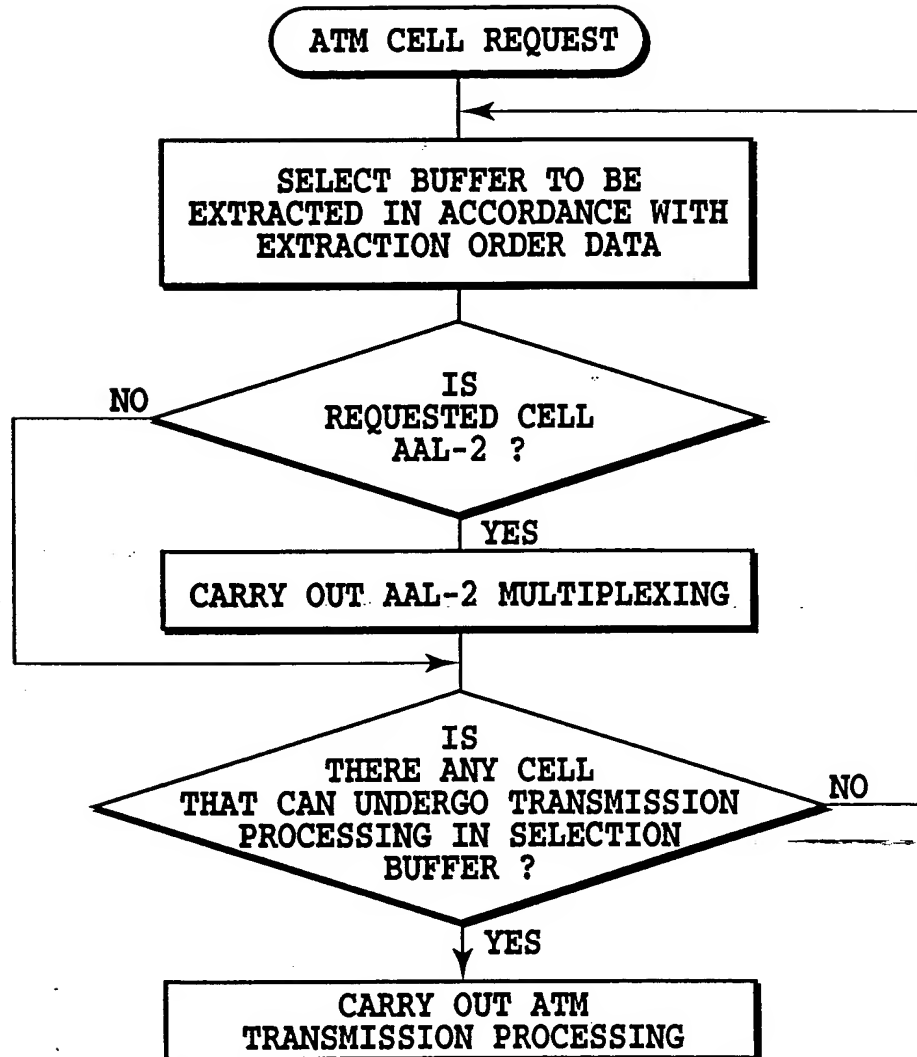


FIG.56

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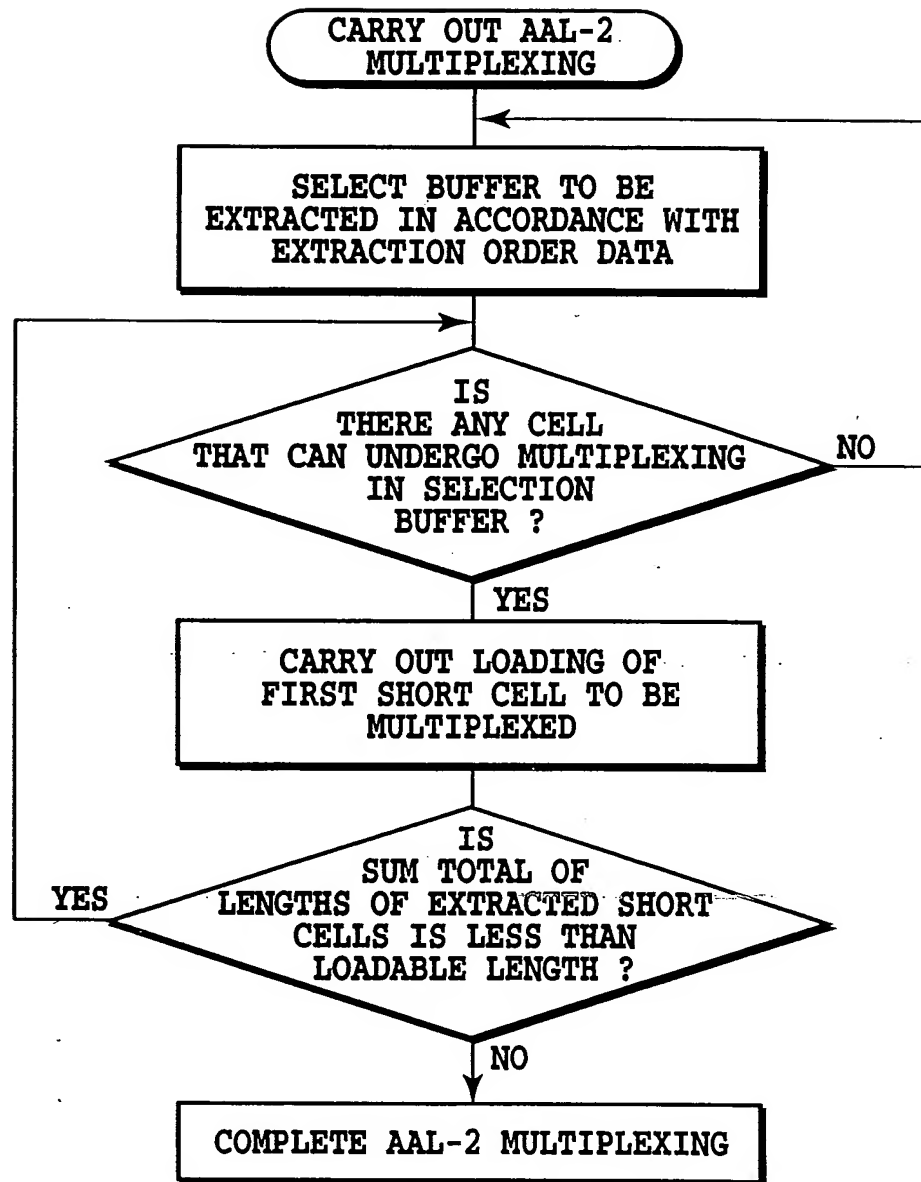


FIG.57

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ATM CELL TRANSMISSION SEQUENCE TABLE

TRANSMISSION ORDER (ABOUT 256 AT MAXIMUM)

PRIORITY ↓	E	F	A	E	F	B	E	F	C	E	. . .
	F	A	B	F	A	C	F	A	D	F	. . .
	A	B	C	A	B	D	A	B	E	A	. . .
	B	C	D	B	C	E	B	C	F	B	. . .
	C	D	E	C	D	F	C	D	A	C	. . .
	D	E	F	D	E	A	D	E	B	D	. . .

FIG.58A

SHORT CELL TRANSMISSION SEQUENCE TABLE
(QUALITY CLASS (6))

TRANSMISSION ORDER (ABOUT 128 AT MAXIMUM)

PRIORITY ↓	E1	E1	E1	E2	E1	E1	E1	E3	. . .
	E2	E2	E2	E3	E2	E2	E2	E4	. . .
	E3	E3	E3	E4	E3	E3	E3	E1	. . .
	E4	E4	E4	E1	E4	E4	E4	E2	. . .

FIG.58B

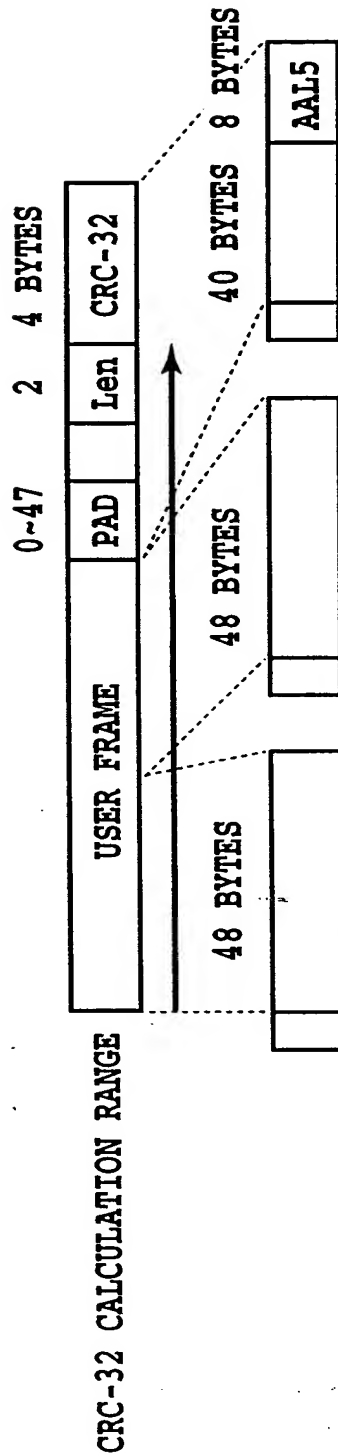
SHORT CELL TRANSMISSION SEQUENCE TABLE
(QUALITY CLASS (7))

TRANSMISSION ORDER (ABOUT 128 AT MAXIMUM)

PRIORITY ↓	F1	F1	F2	F1	F1	F3	F1	F1	. . .
	F2	F2	F3	F2	F2	F4	F2	F2	. . .
	F3	F3	F4	F3	F3	F1	F3	F3	. . .
	F4	F4	F1	F4	F4	F2	F4	F4	. . .

FIG.58C

- CARRY OUT CELL EXTRACTION PROCESSING IN ACCORDANCE WITH TRANSMISSION SEQUENCE DETERMINED FOR EACH OUTPUT TIMING.
- IF NO CELL IS PRESENT IN HIGHER PRIORITY QUALITY CLASS, A CELL IN THE NEXT PRIORITY IS EXTRACTED.



PAD : PADDING BITS (ALL "0s")

Len : NUMBER OF BYTES OF EFFECTIVE DATA LENGTH OF USER FRAME

CRC-32 : CRC CHECKING BITS OVER 32 BITS

CRC-32 : GENERATOR POLYNOMIAL

$$G(X) = X^{32} + X^{26} + X^{23} + X^{16} + X^{12} + X^{11} + X^{10} + X^8 + X^7 + X^5 + X^4 + X^2 + X^1 + 1$$

CHECK BITS ARE OBTAINED BY INVERTING BITS OF REMAINDER GENERATED BY THE GENERATOR POLYNOMIAL.

FIG.59

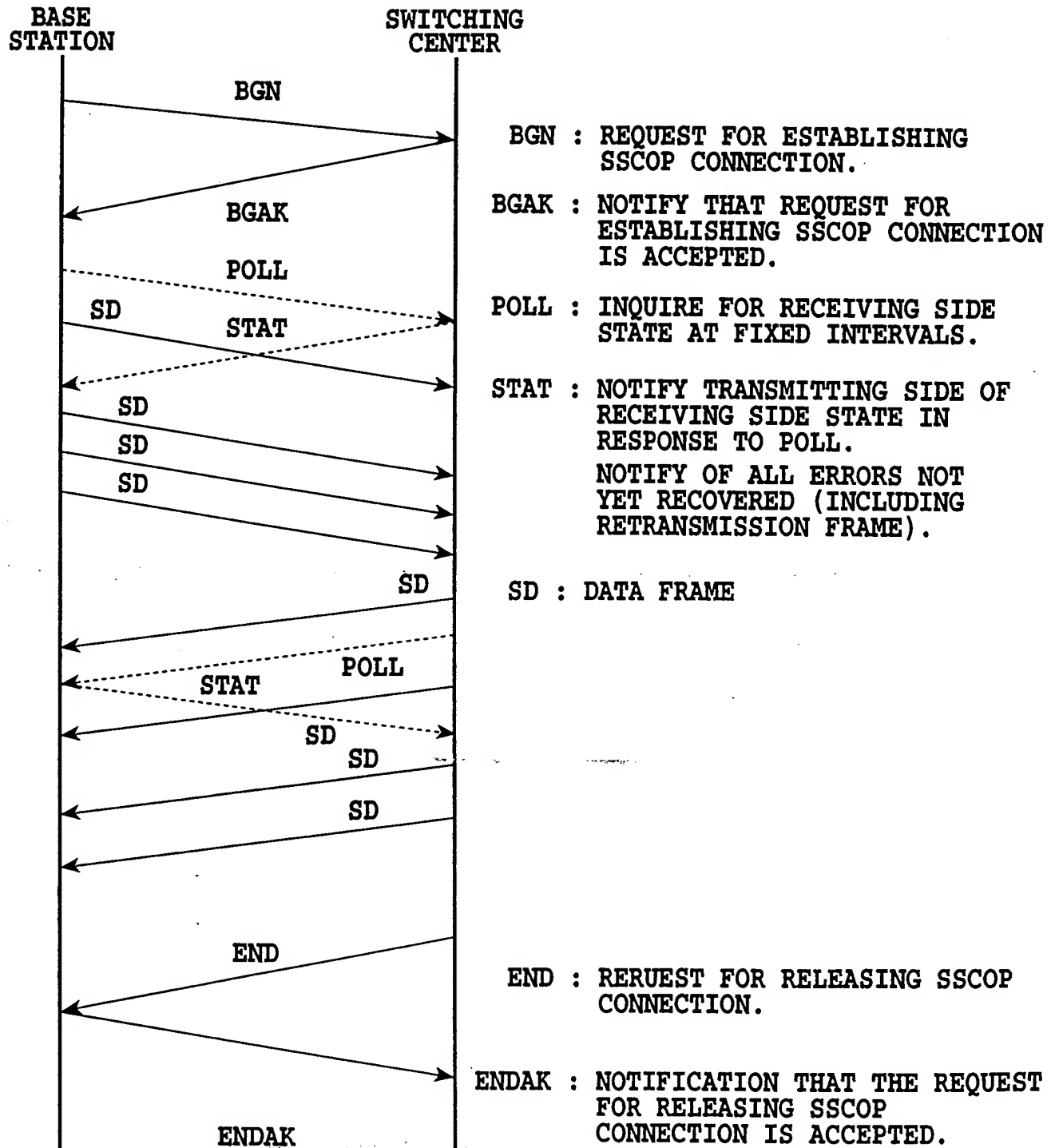


FIG.60

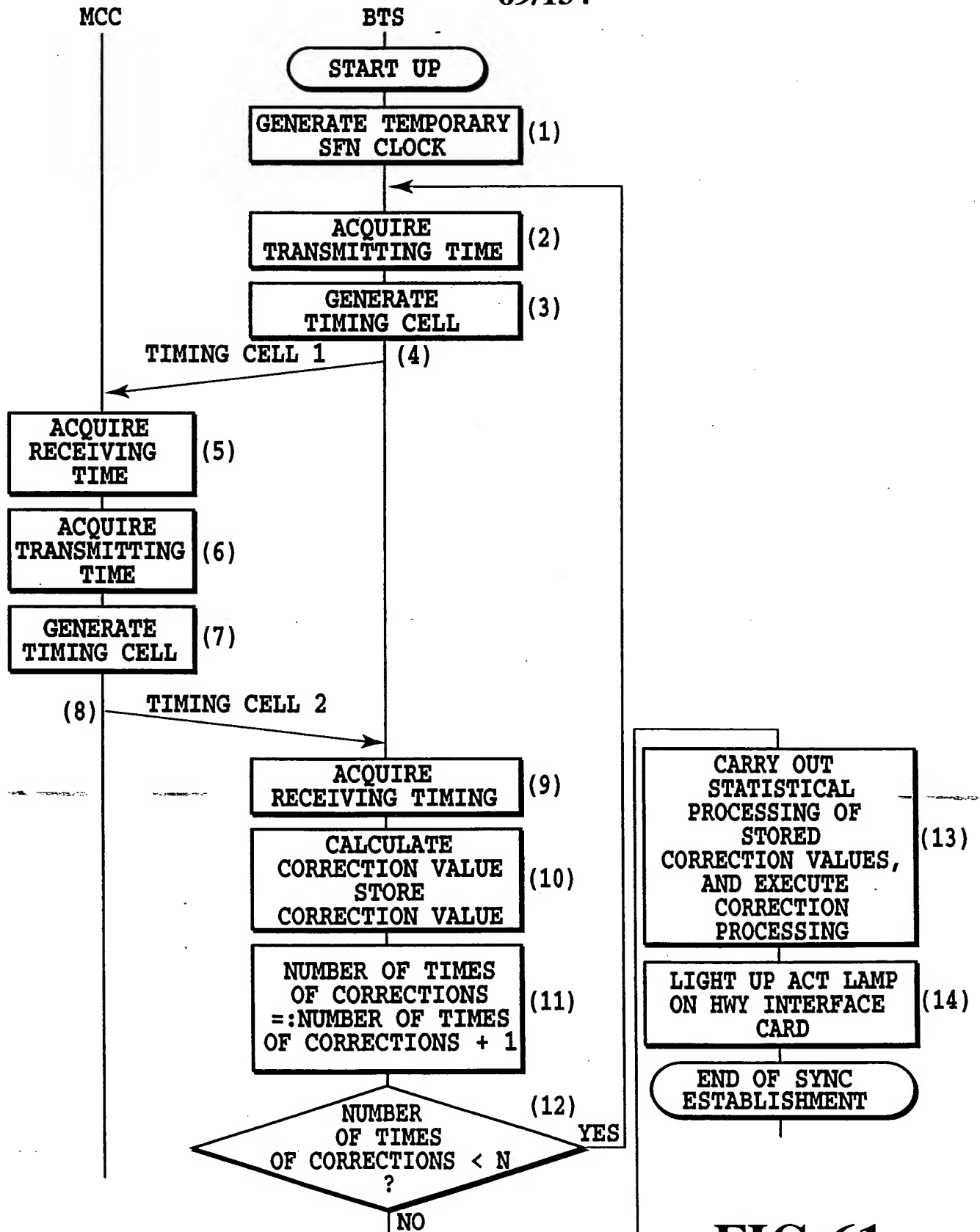


FIG 61

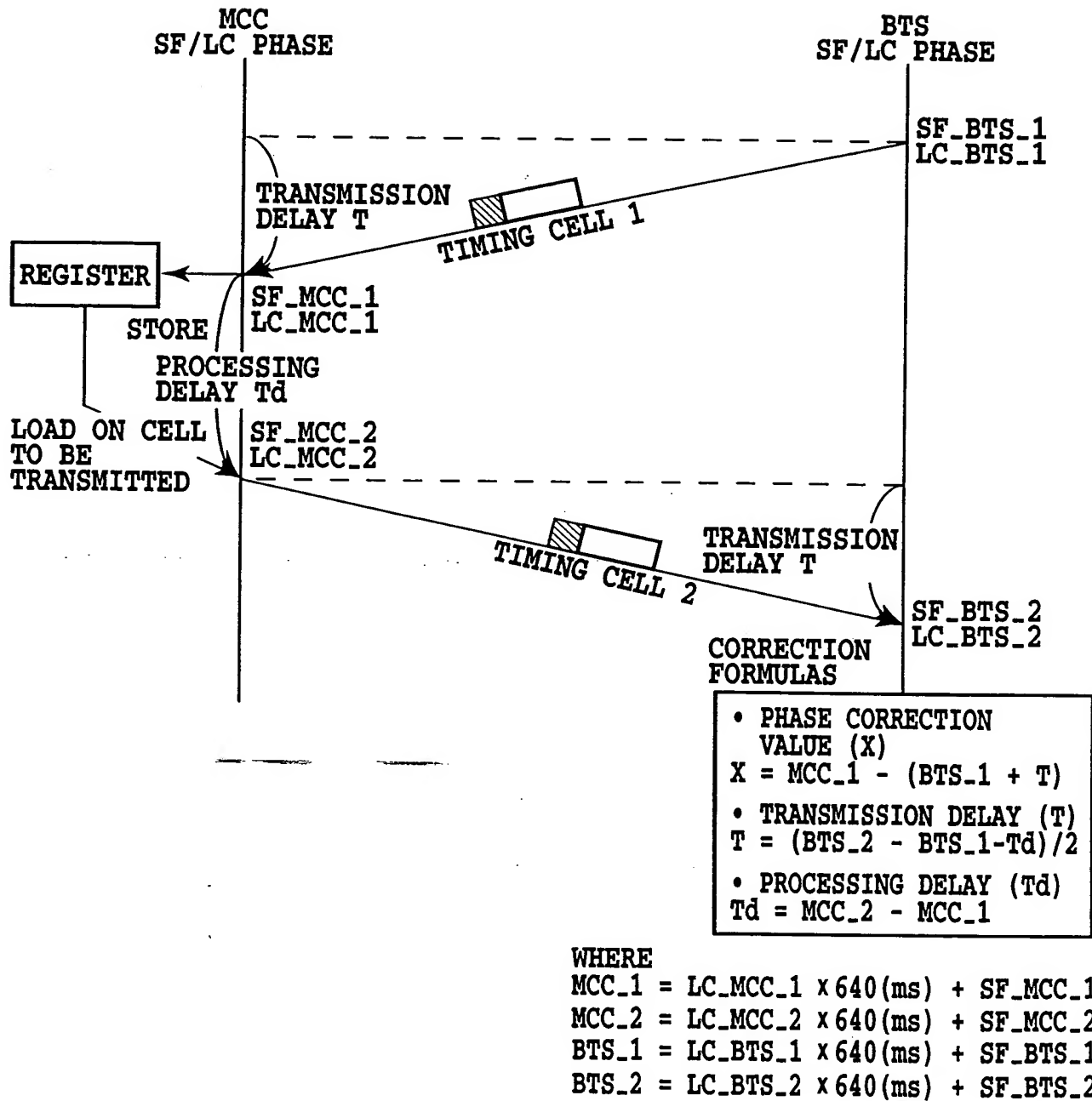


FIG.62

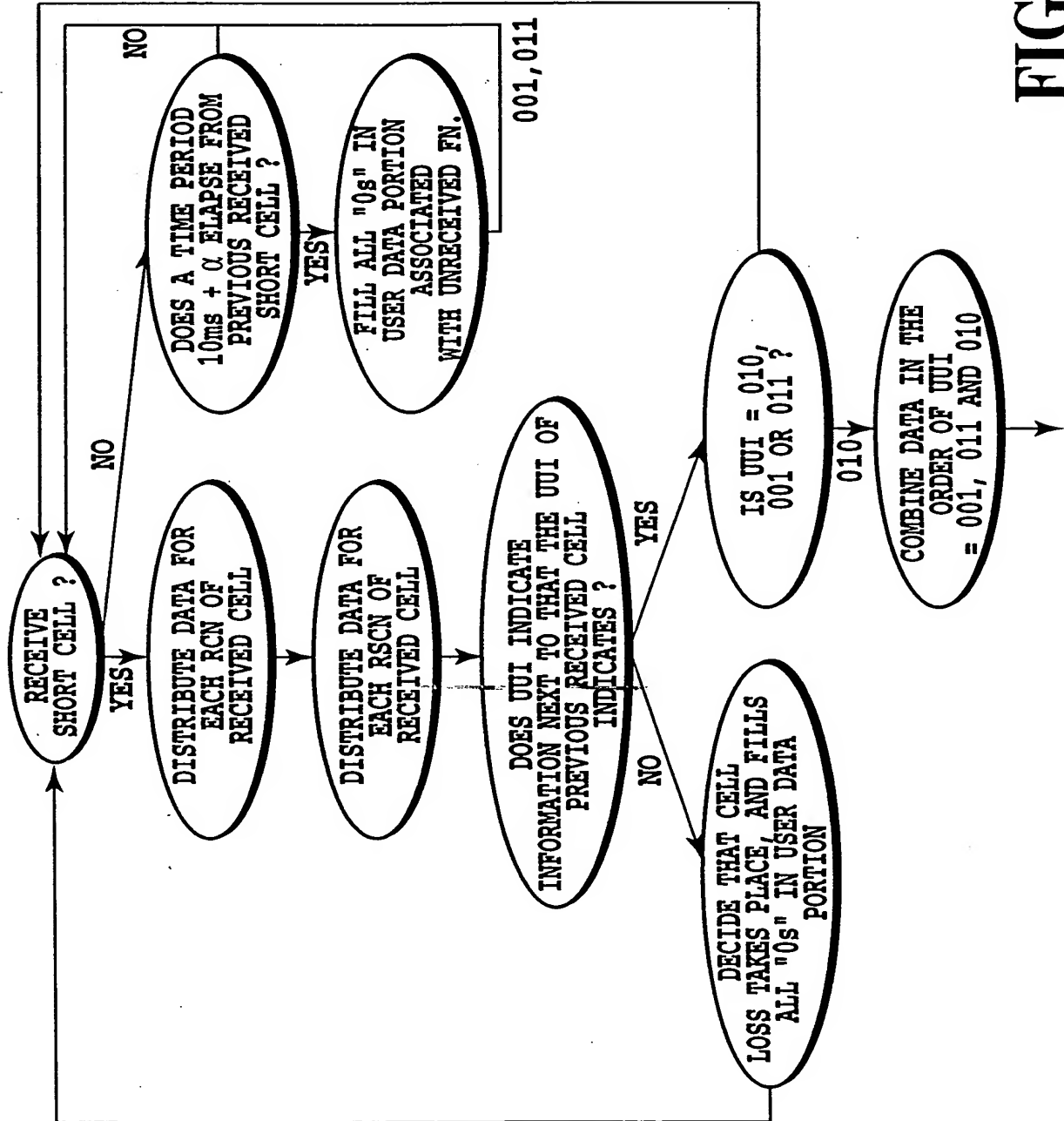


FIG. 63

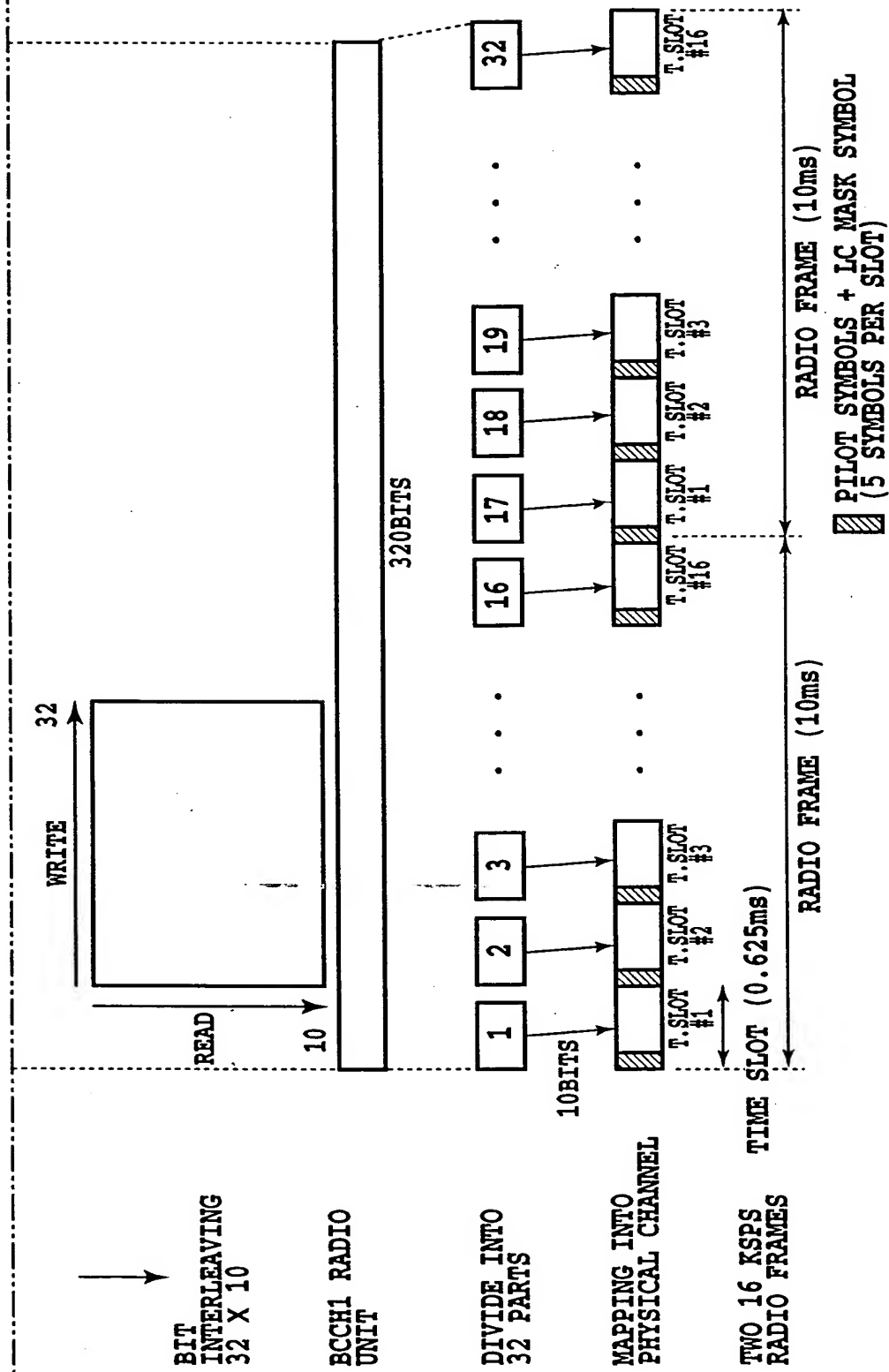


FIG.64B

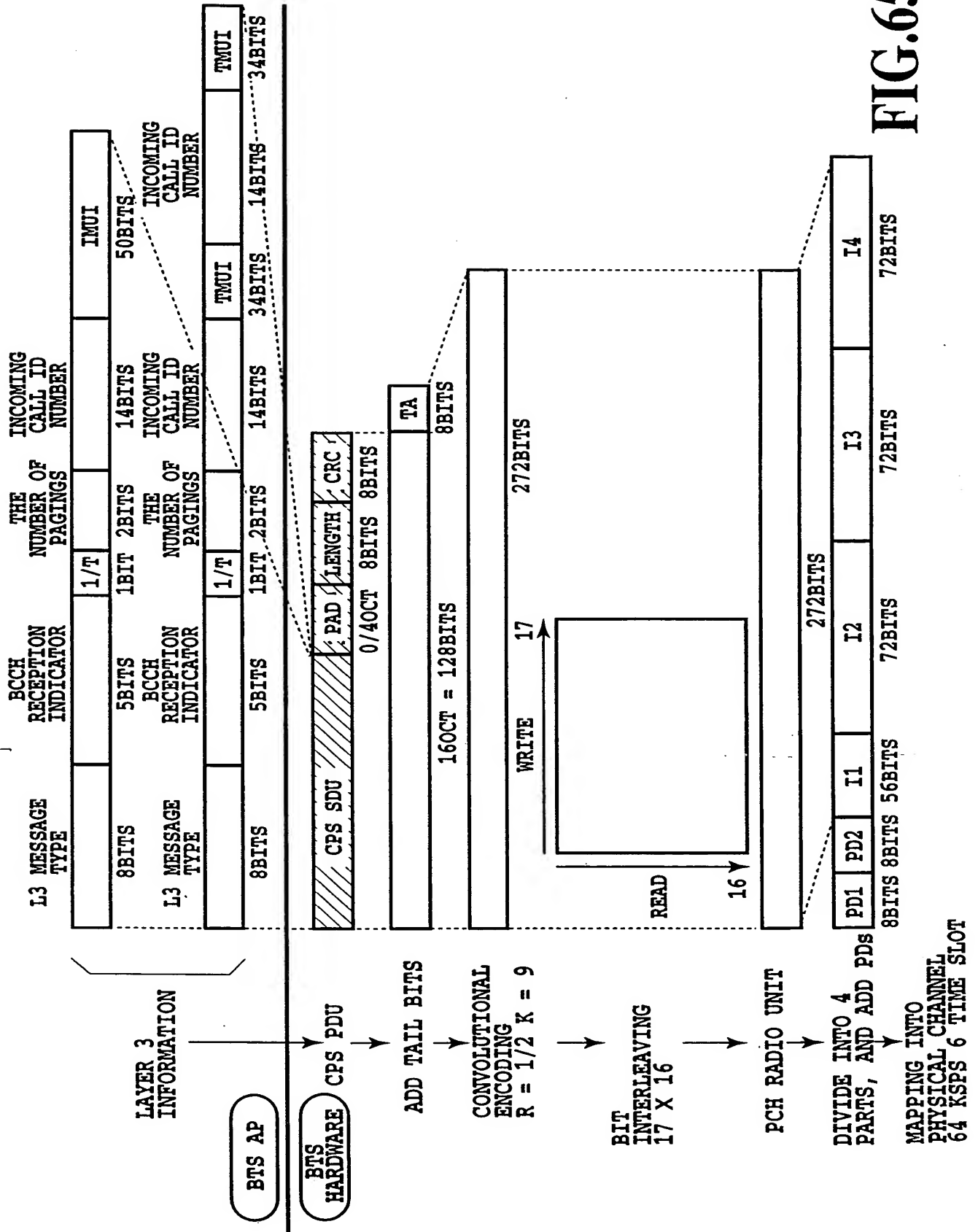


FIG. 65A

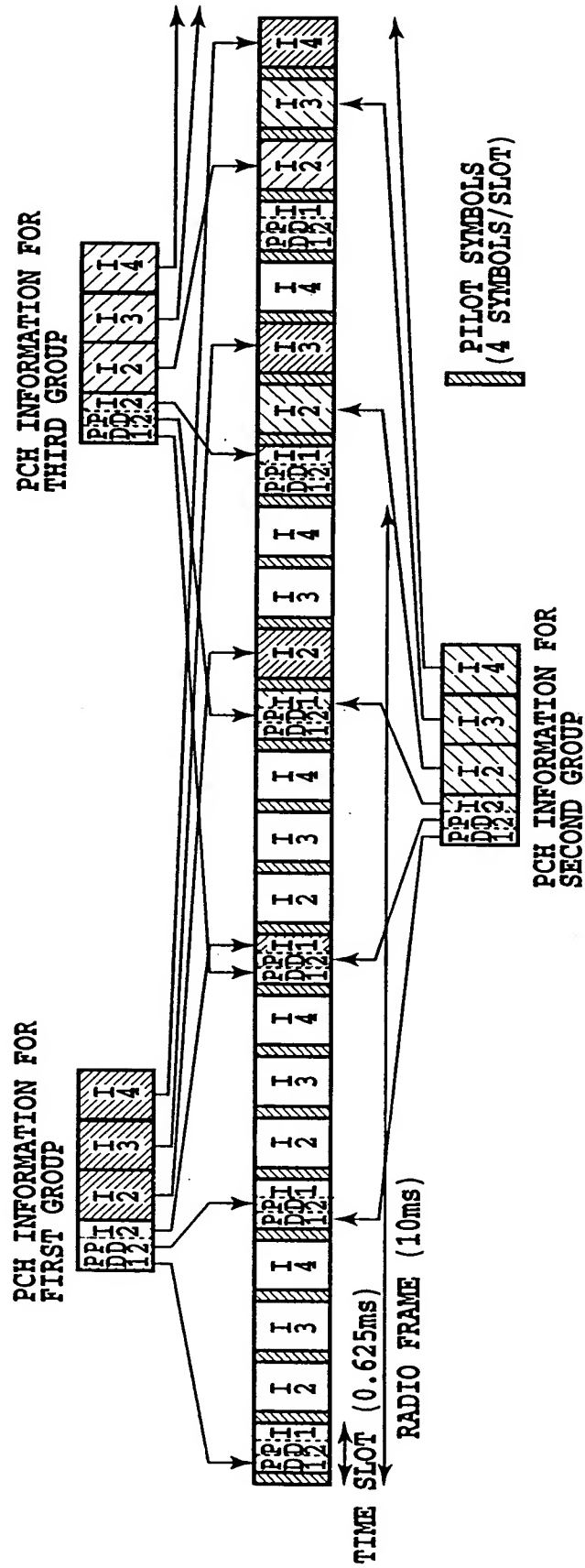


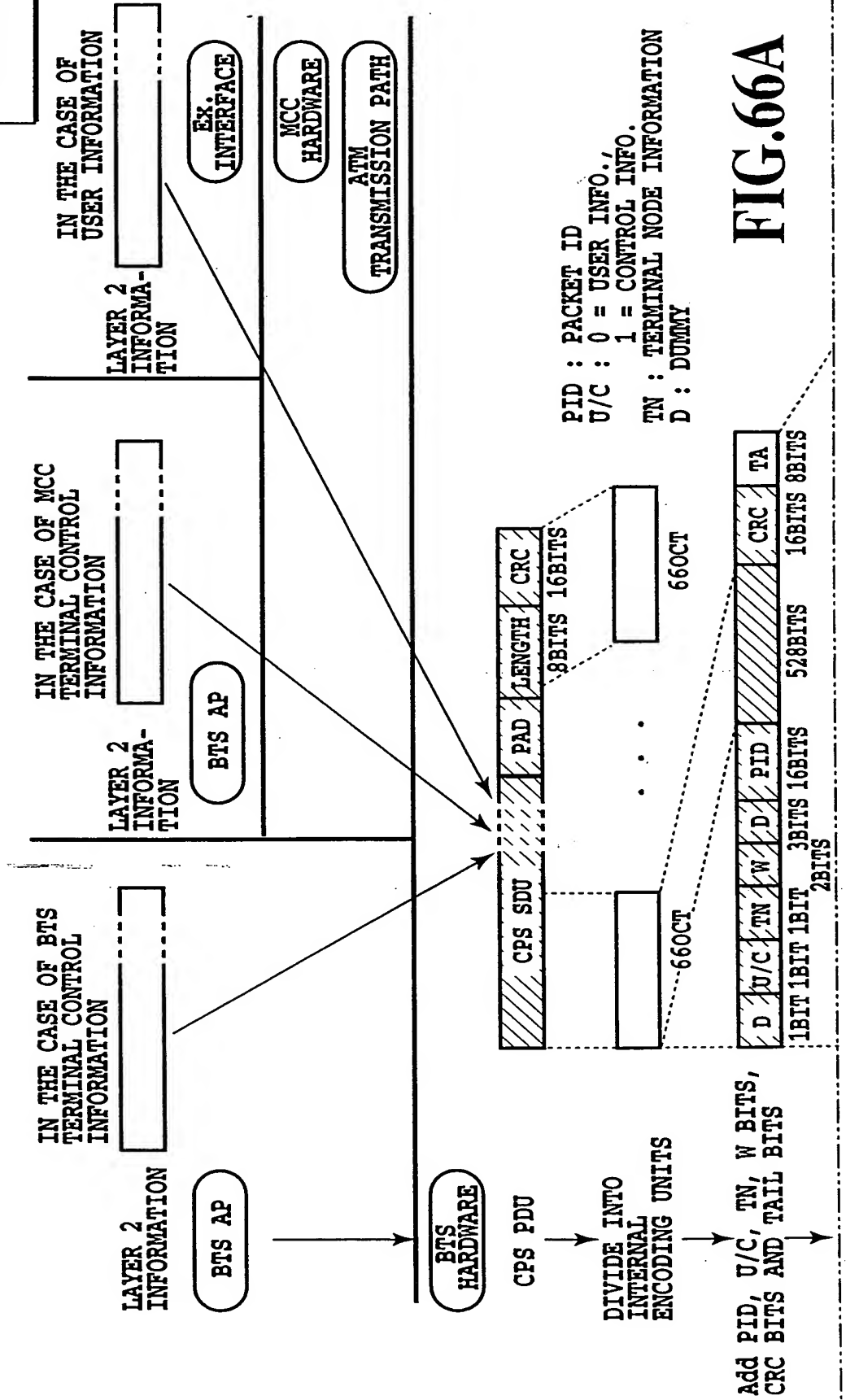
FIG.65B

FIG.66

FIG.66A

FIG.66B

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BIT INTERLEAVING
16 X 72

FACH-L RADIO UNIT

DIVIDE INTO 16 PARTS

**MAPPING INTO
PHYSICAL CHANNEL
ONE 64 KSPS
RADIO FRAME**

FIG. 66B

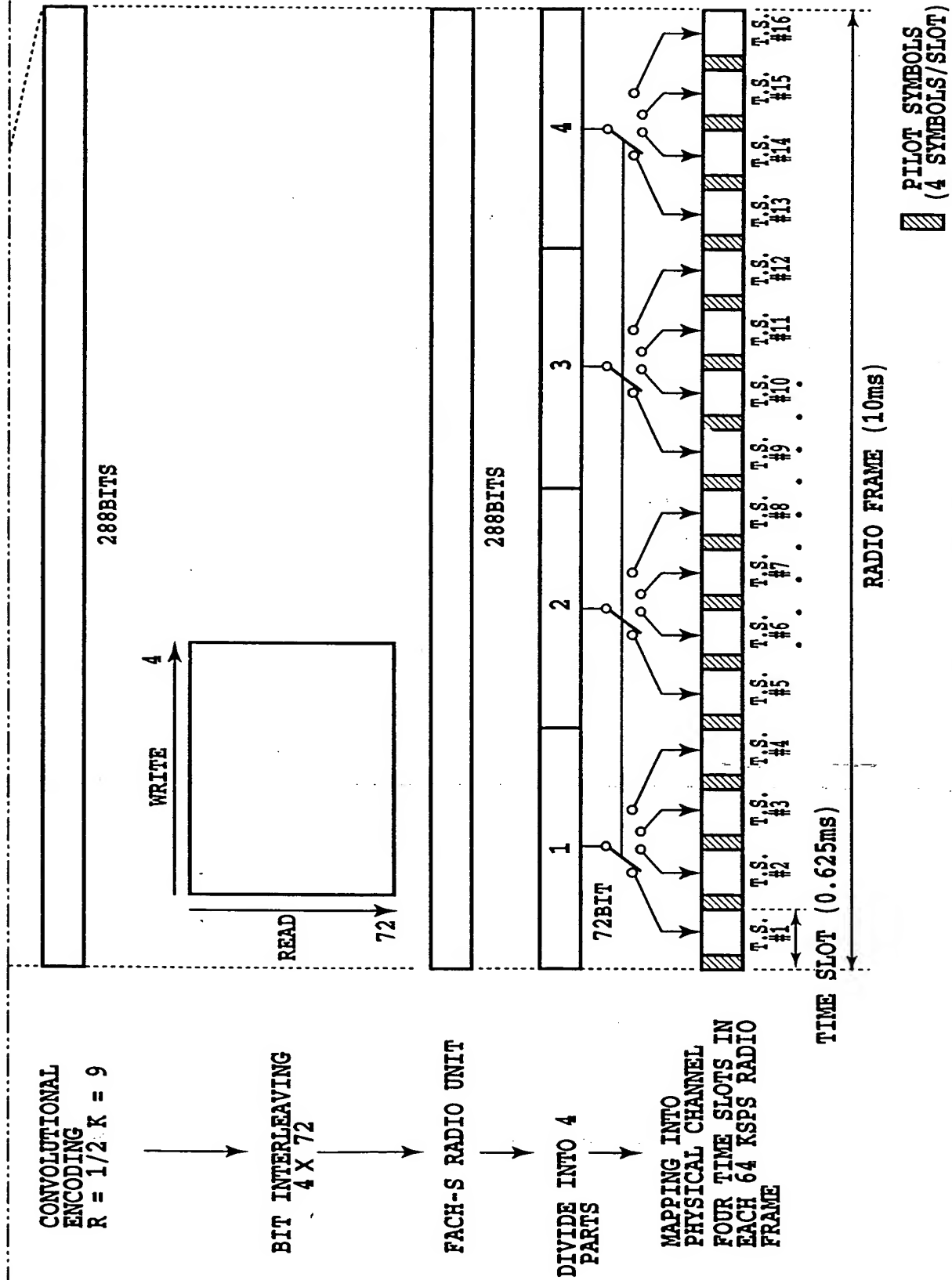


FIG.67B

FIG.68

FIG.68A

FIG.68B

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FIG.68A

BTS
HARDWARE

ASSEMBLE ACK AND
CRC BITS



CONVOLUTIONAL
ENCODING
 $R = 1/2 \quad K = 9$

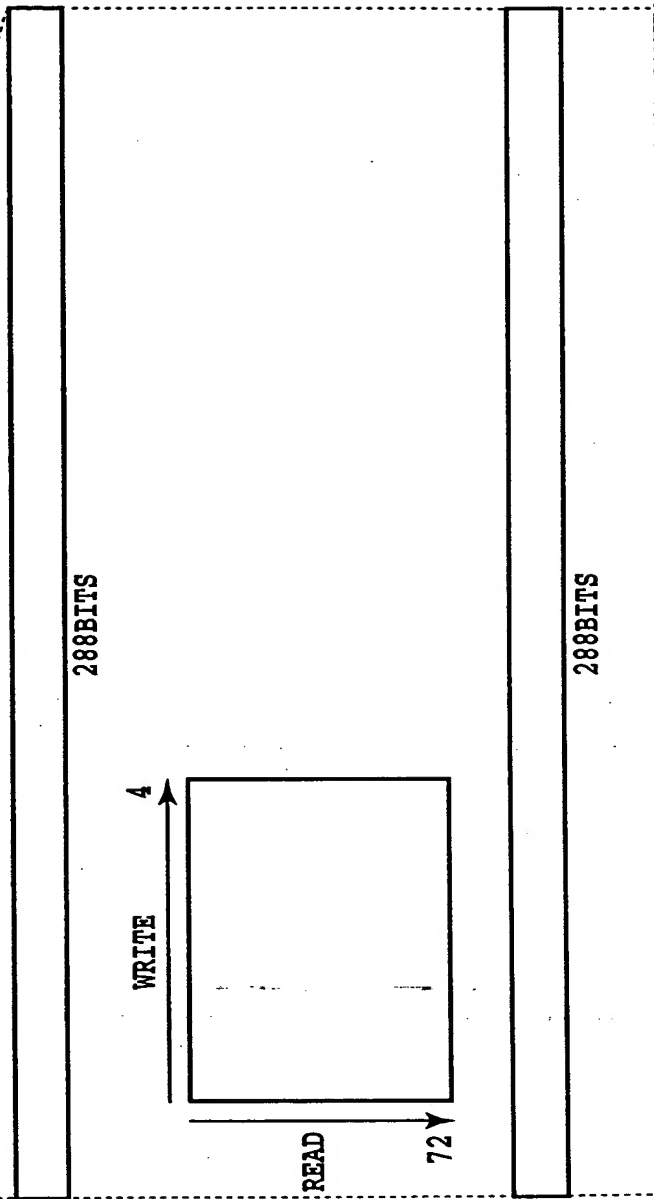
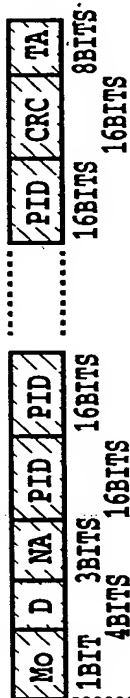


BIT INTERLEAVING
 4×72



FACH-S RADIO UNIT

Mo : MODE DESIGNATION
D : DUMMY
NA : NUMBER OF TIMES OF ACK
TRANSMISSION IN UNIT (1-7)
PID: PACKET ID OF RACH WHEN CRC IS
CORRECT; WHEN THE NUMBER OF
TIMES OF ACK TRANSMISSION IS
LESS THAN 7, REMAINING FIELDS
ARE FILLED WITH ALL "0s"



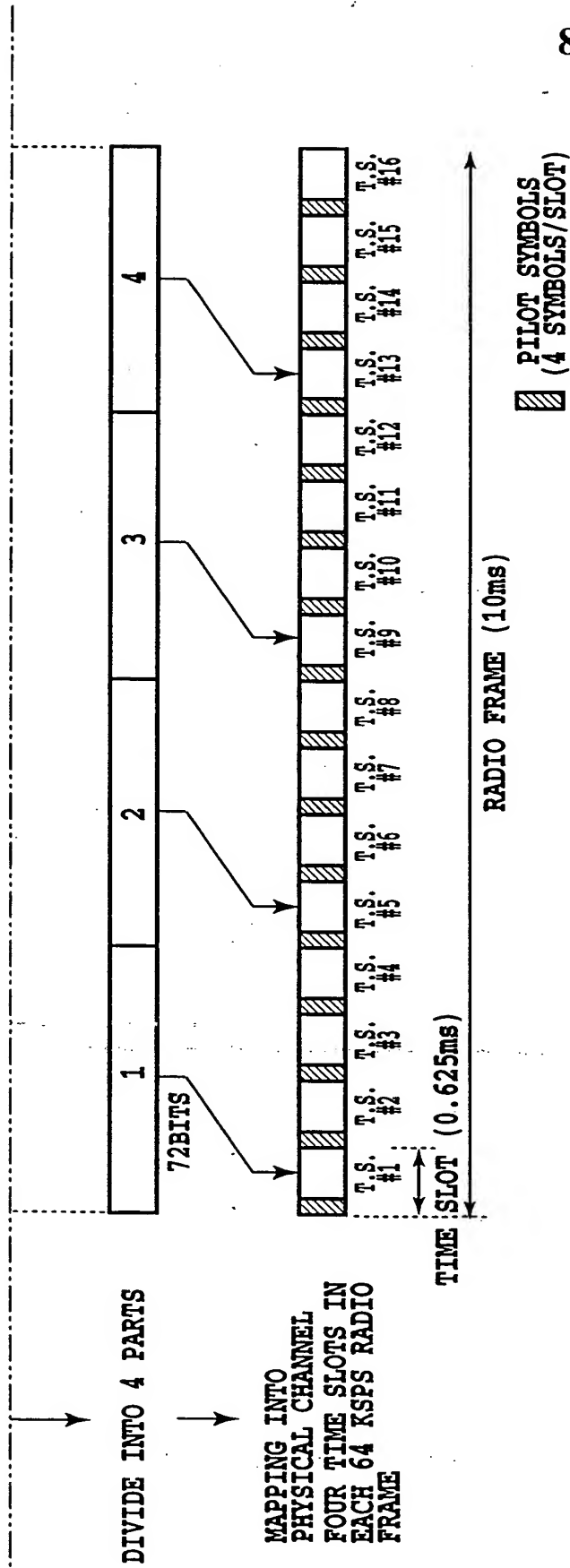


FIG.68B

FIG.69

FIG.69A

FIG.69B

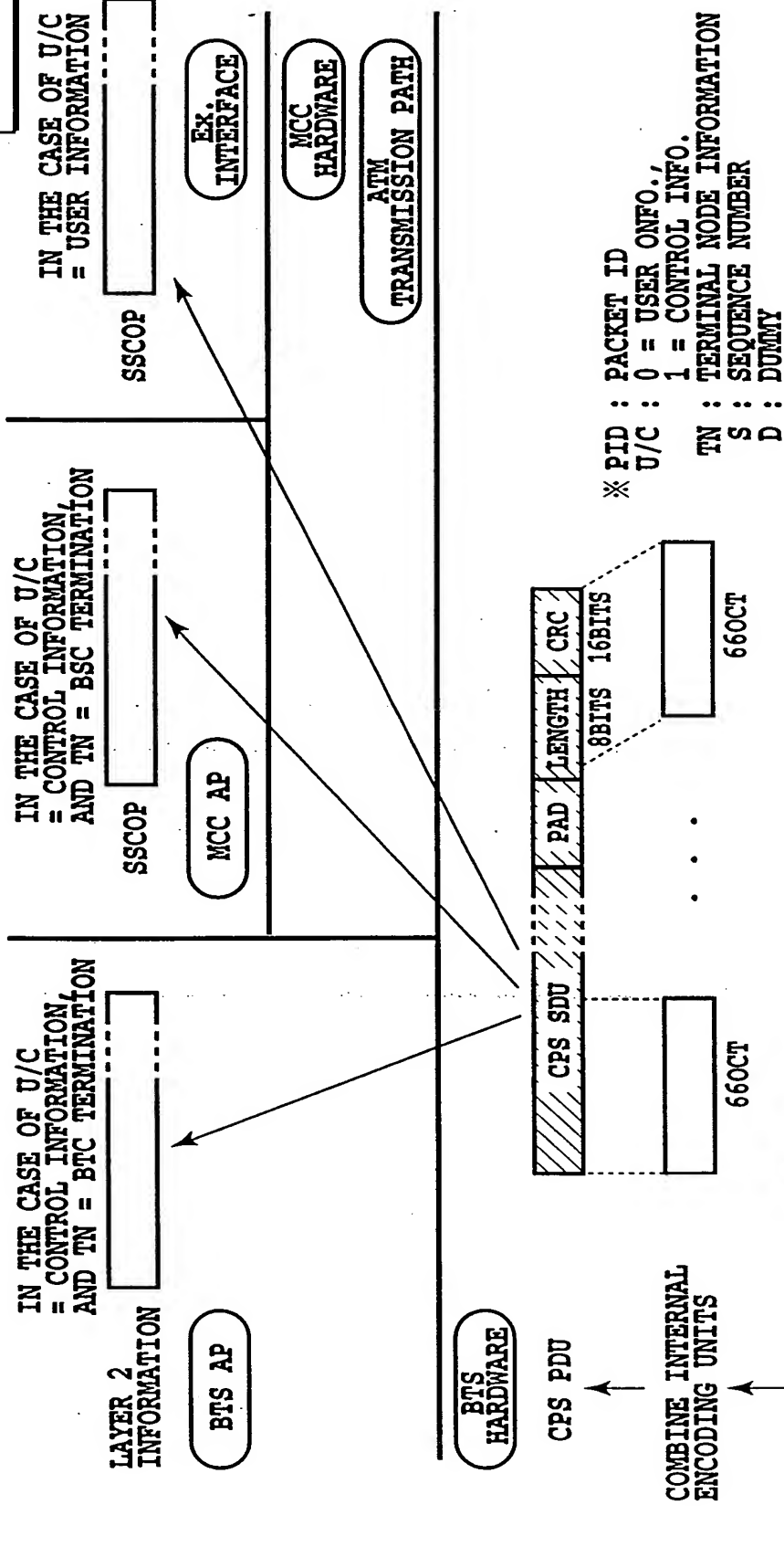


FIG.69A

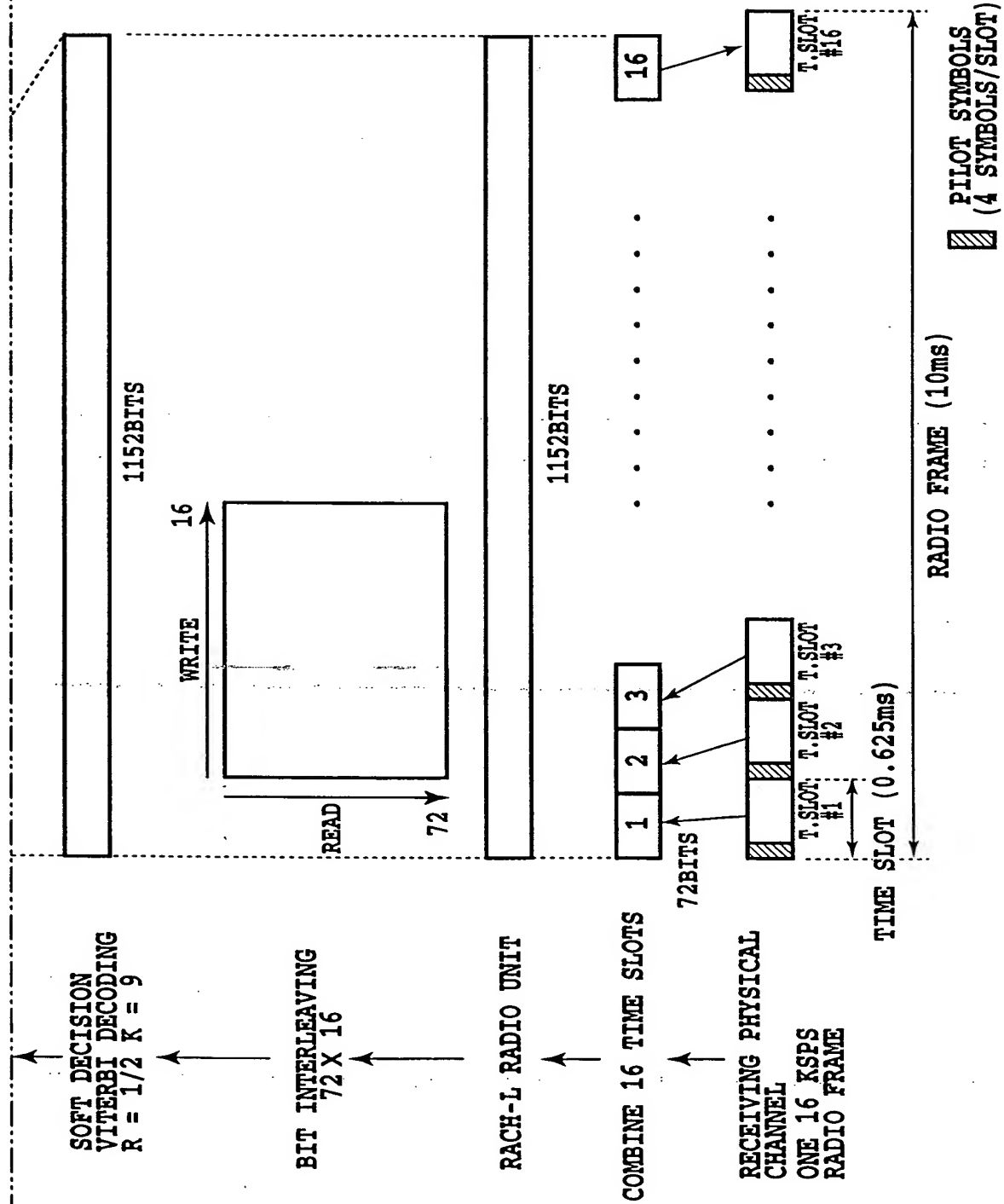


FIG.69B

FIG.70

FIG.70A

FIG.70B

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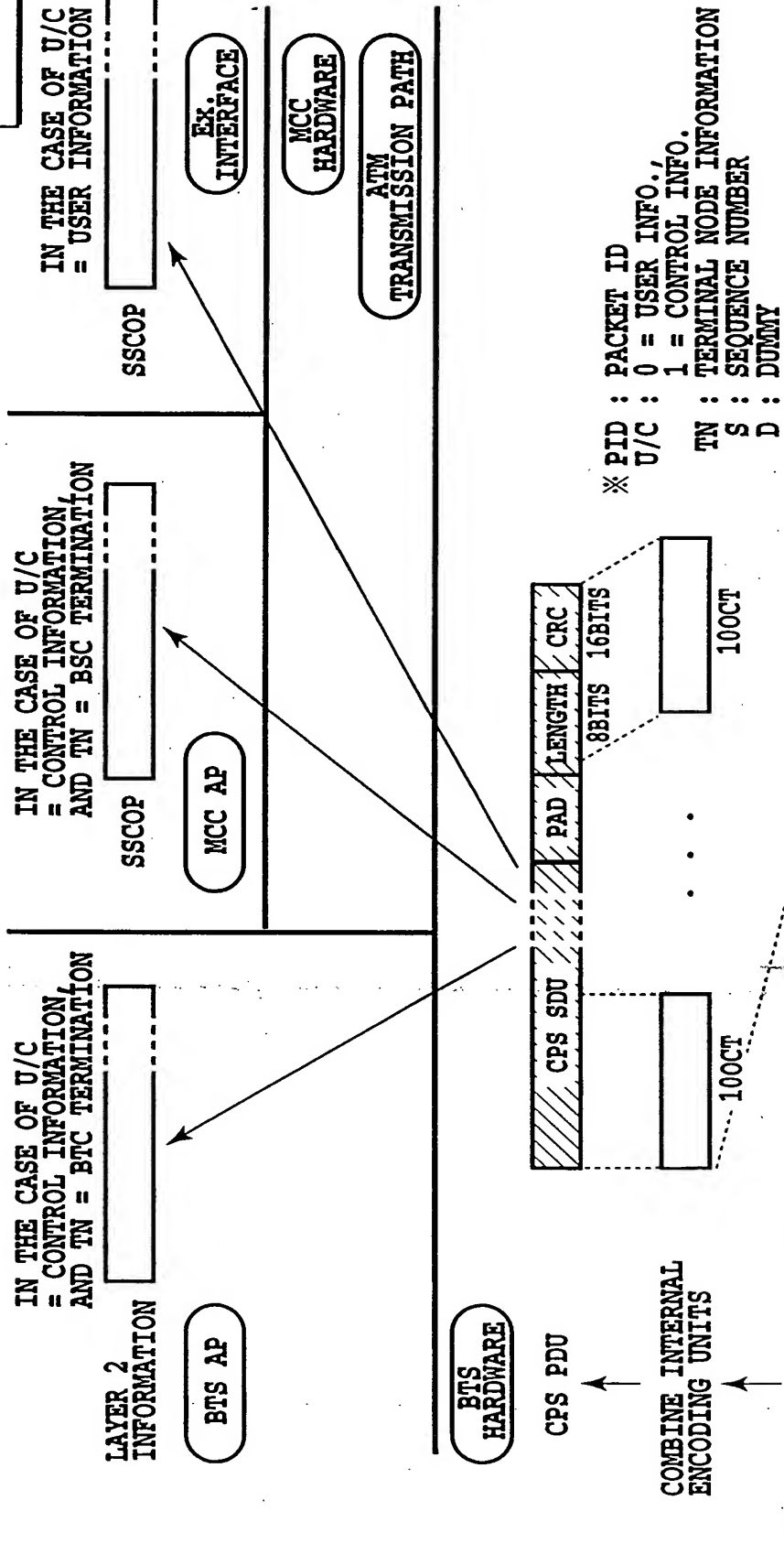


FIG.70A

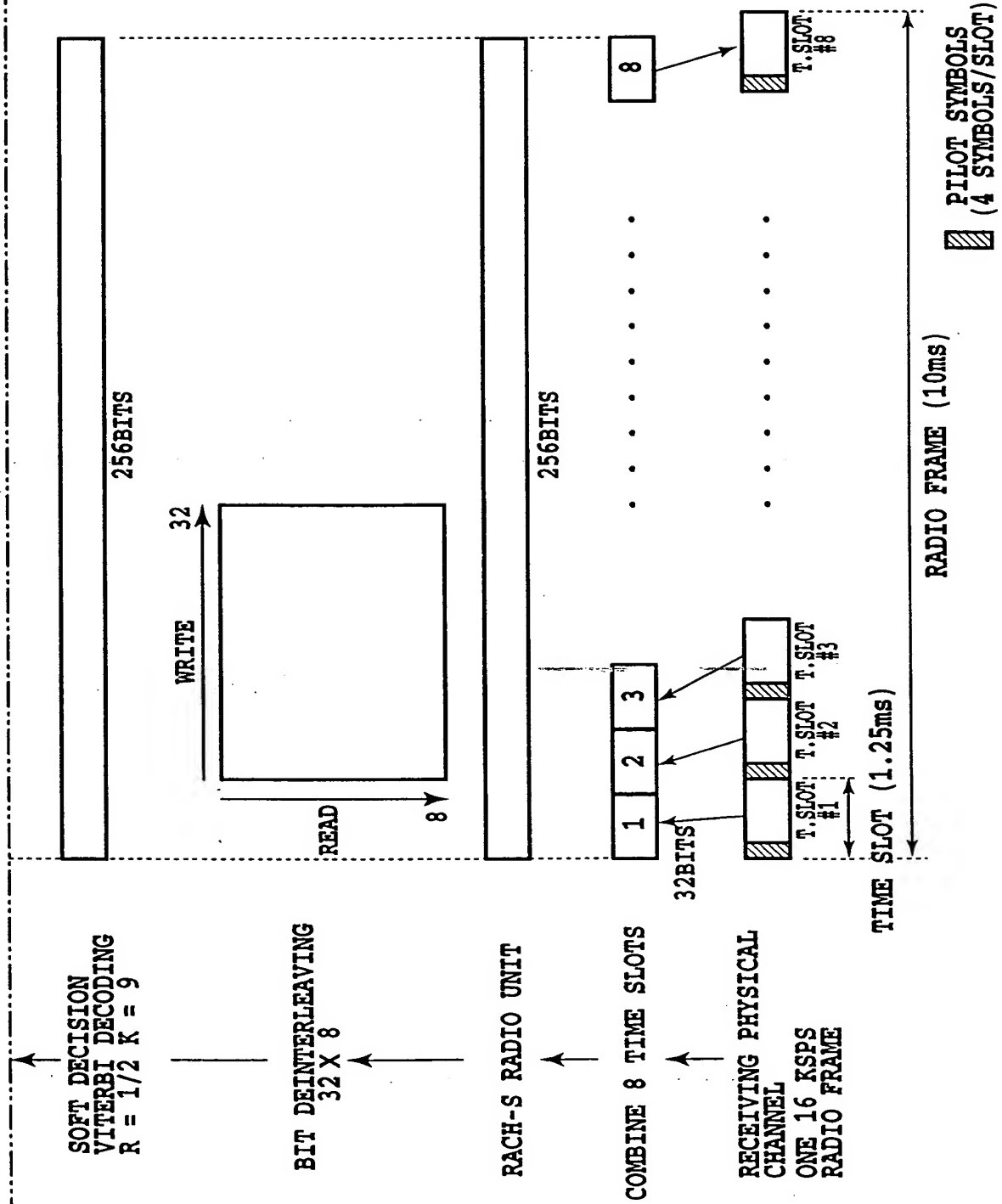
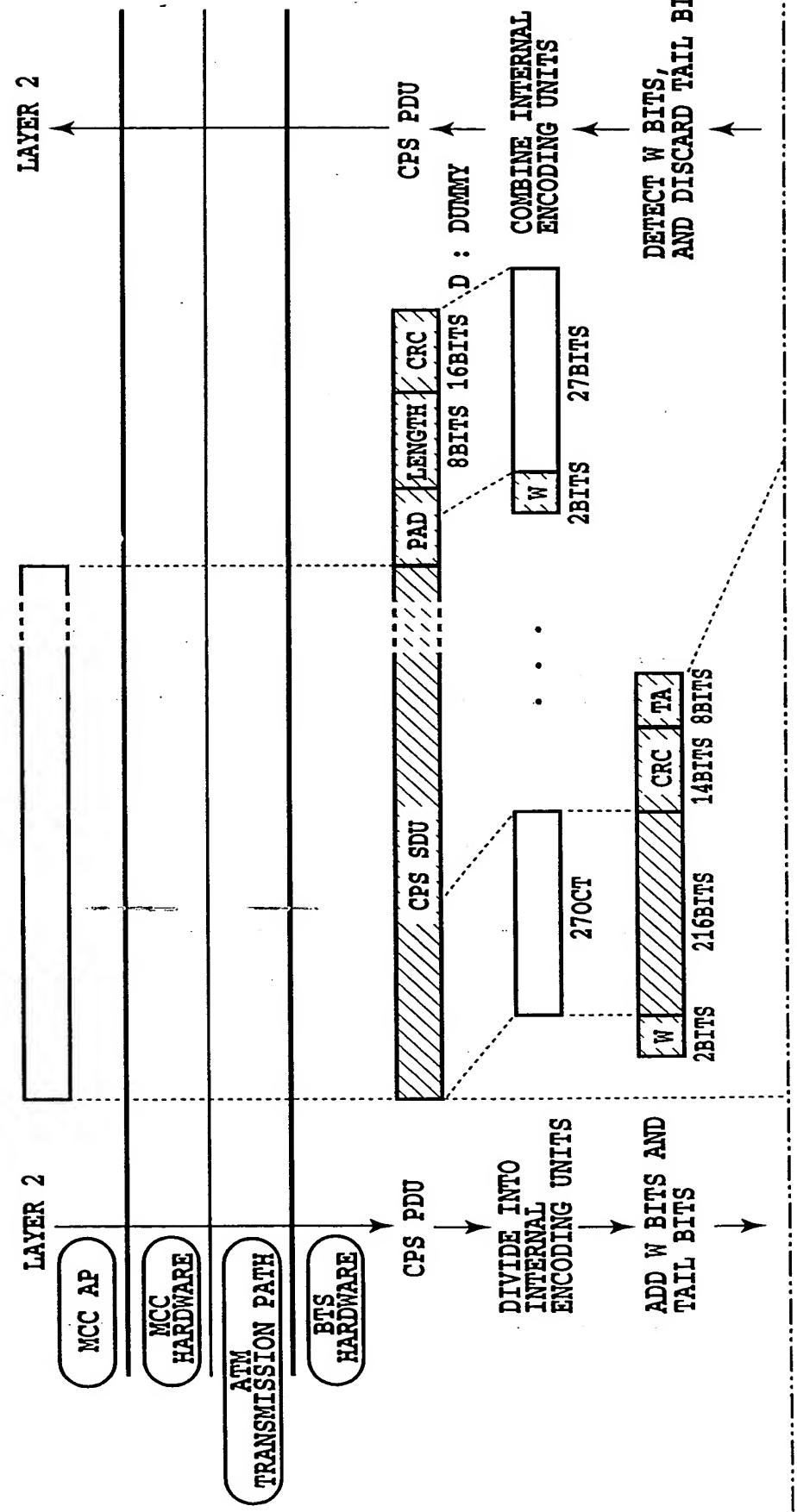


FIG.70B

FIG.71

FIG.71A

FIG.71A
FIG.71B



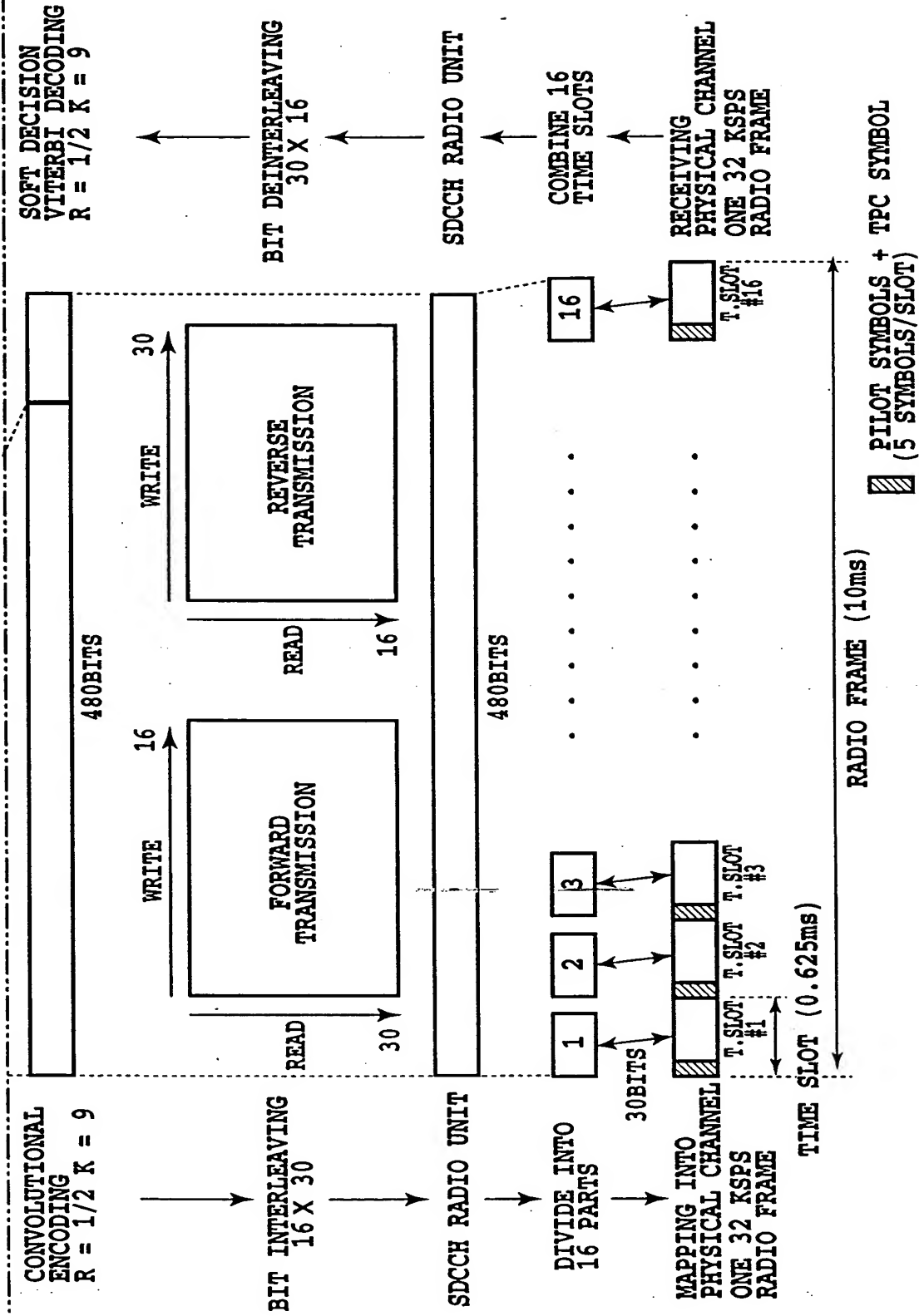


FIG.71B

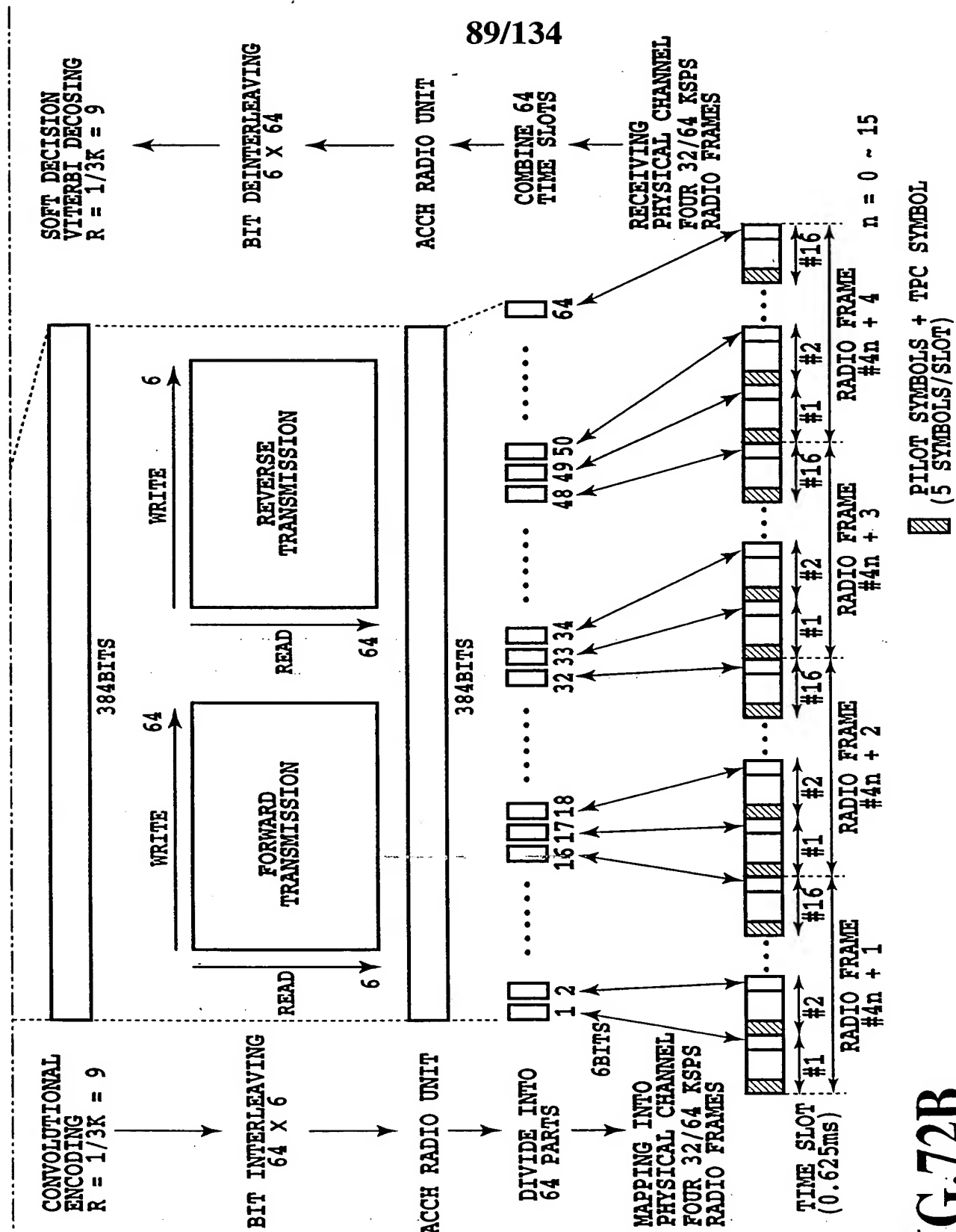


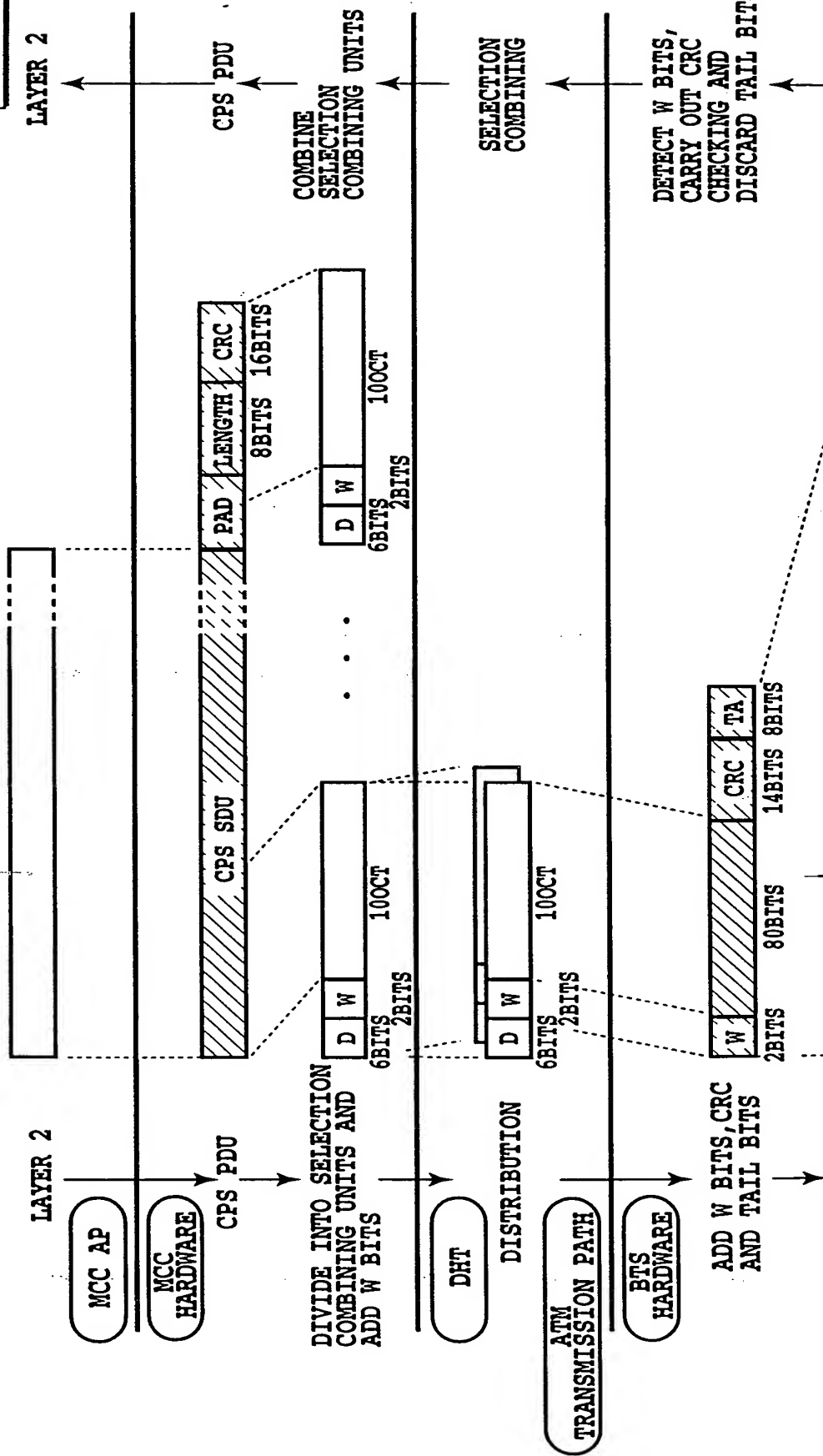
FIG.72B

FIG.73

FIG.73A

FIG.73B

FIG.73A



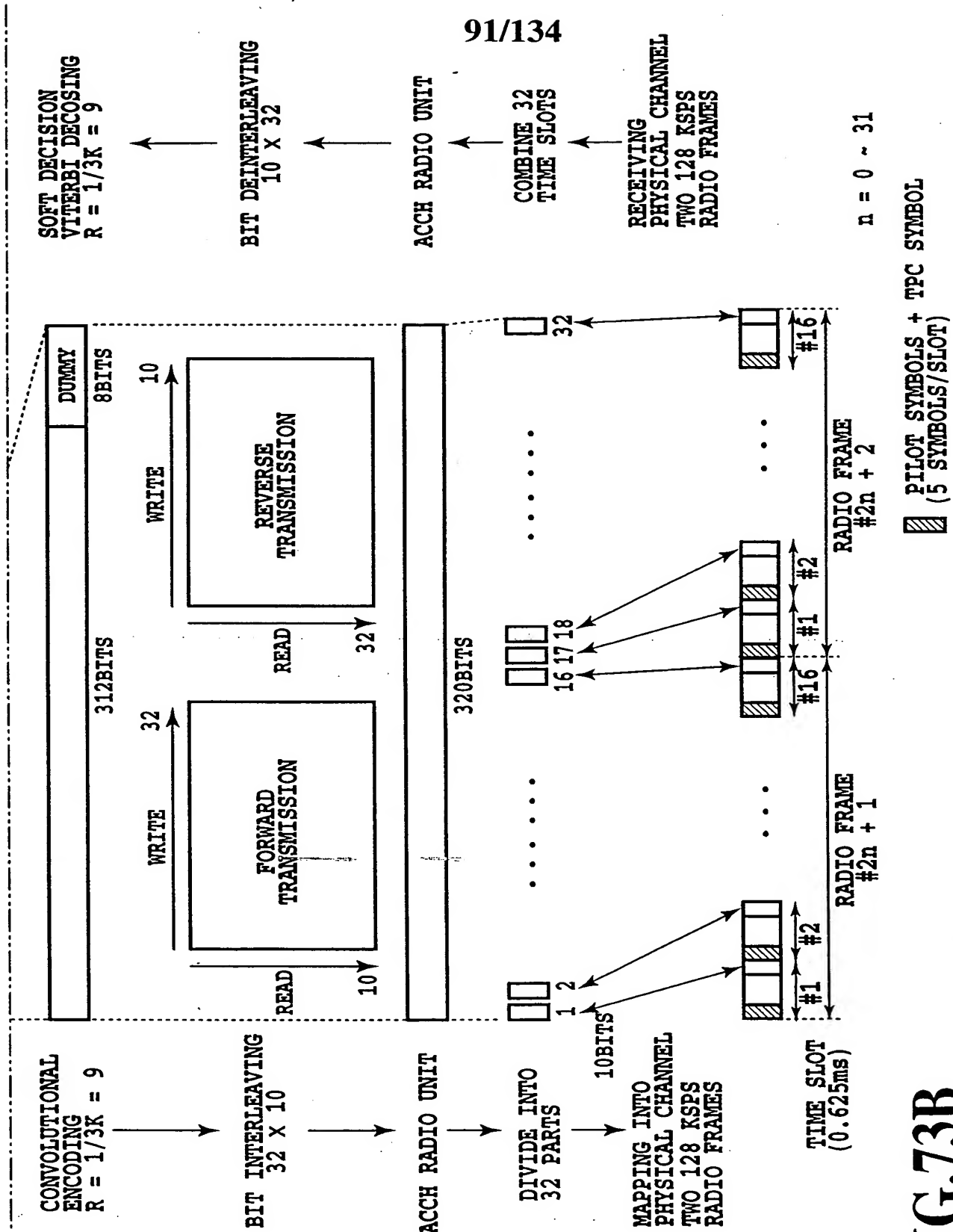


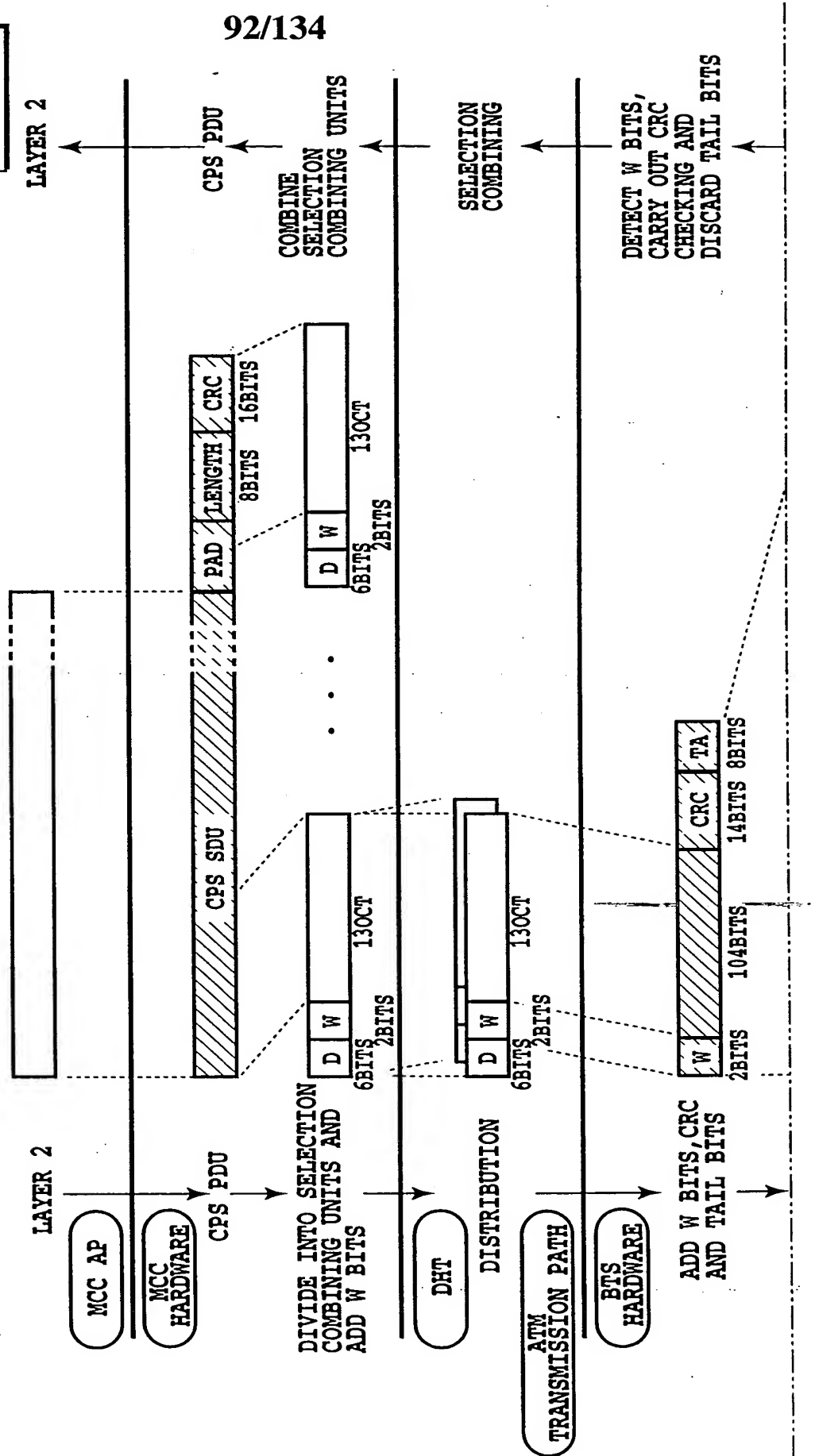
FIG.73B

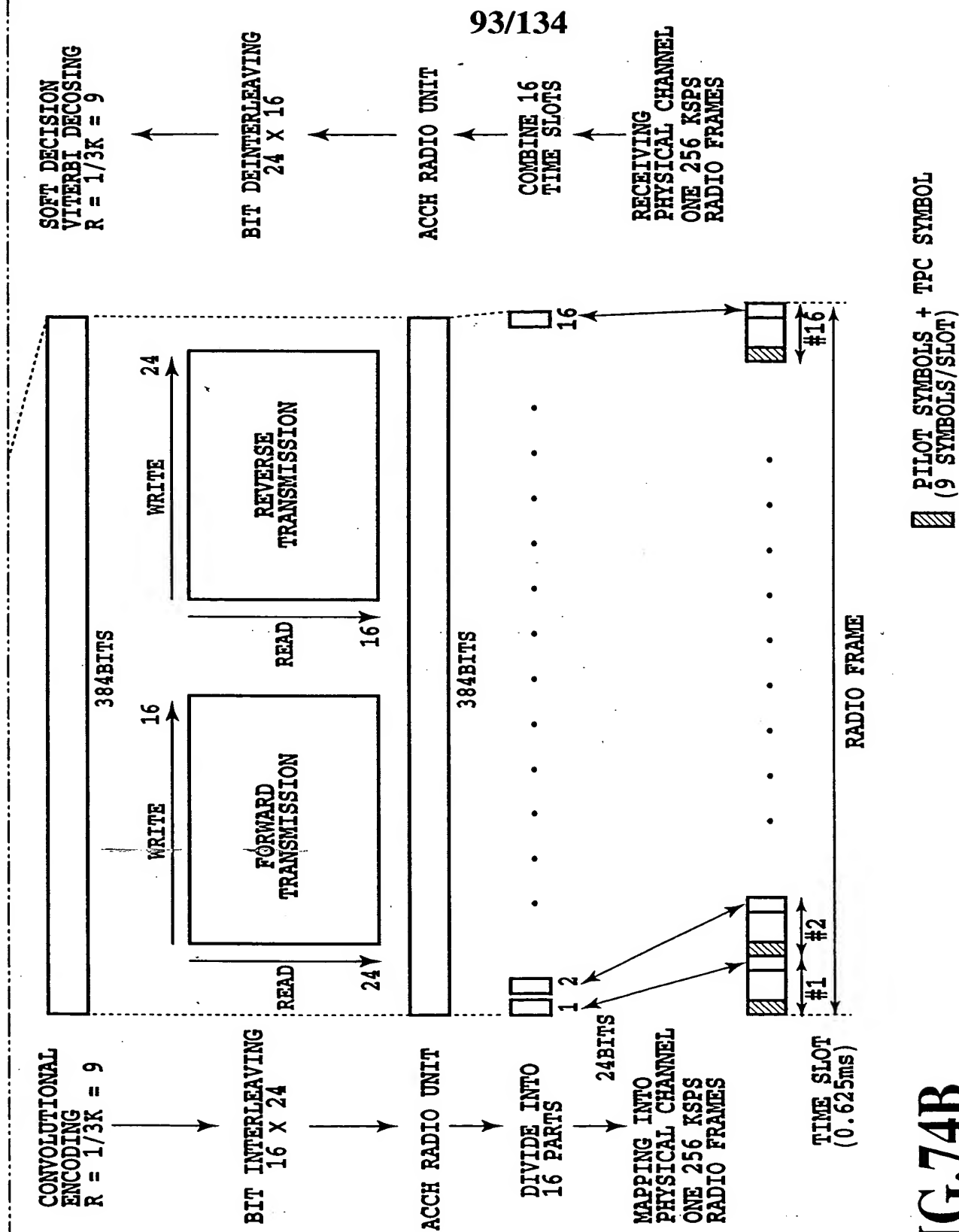
FIG.74

FIG.74A

FIG.74B

FIG.74A





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PILOT SYMBOLS + TPC SYMBOL
(9 SYMBOLS/SLOT)

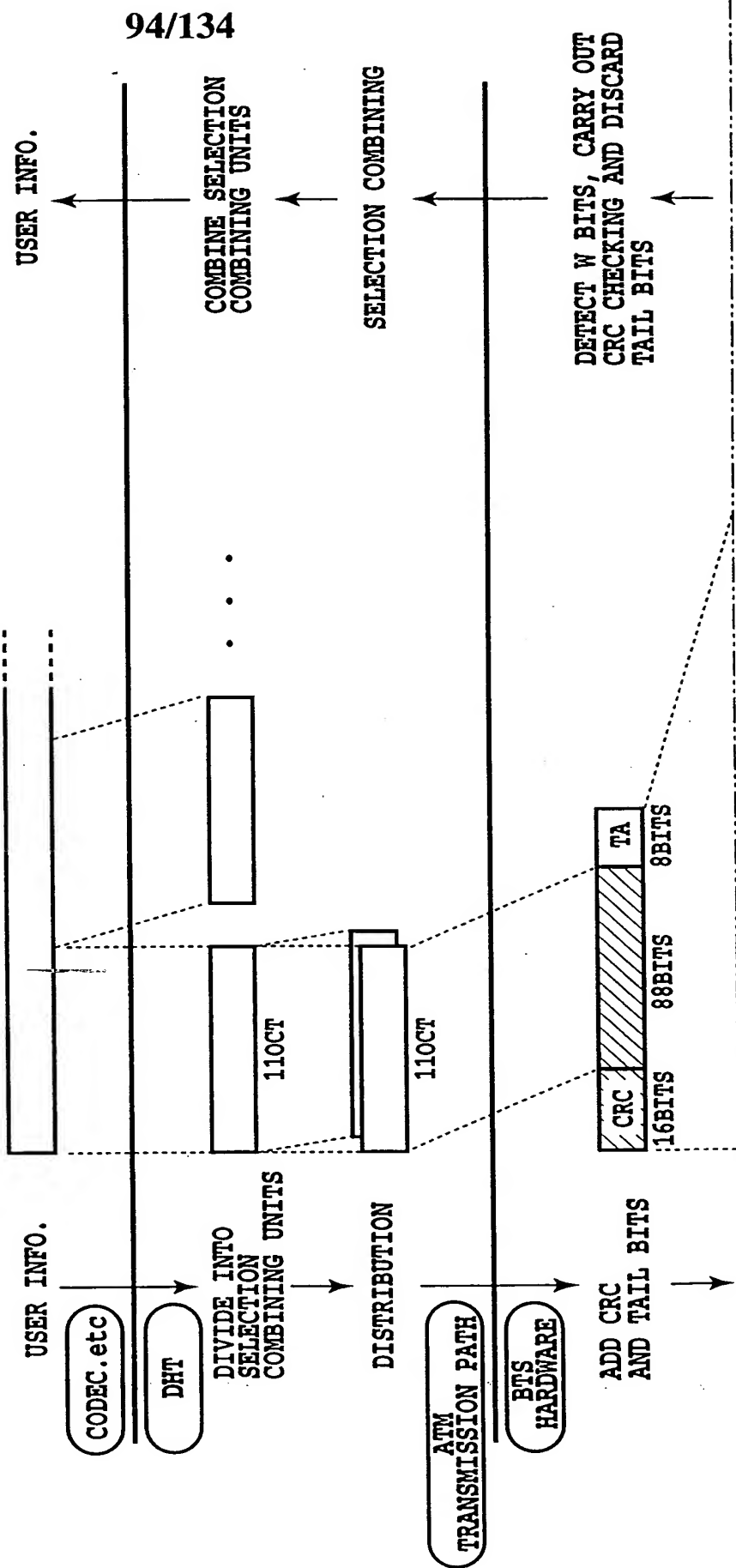
FIG.74B

FIG.75

FIG.75A

FIG.75B

FIG.75A



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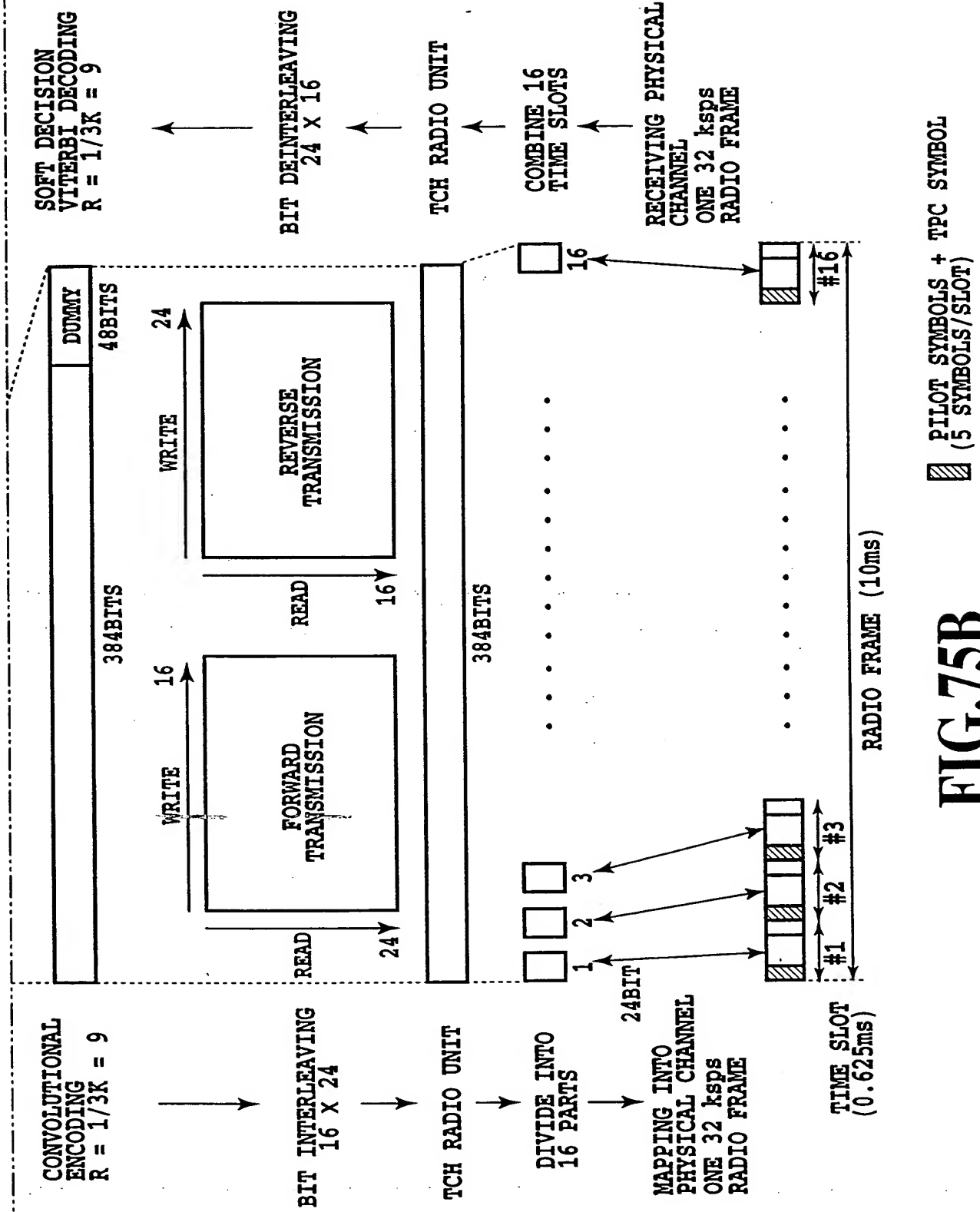


FIG.75B

FIG.76A

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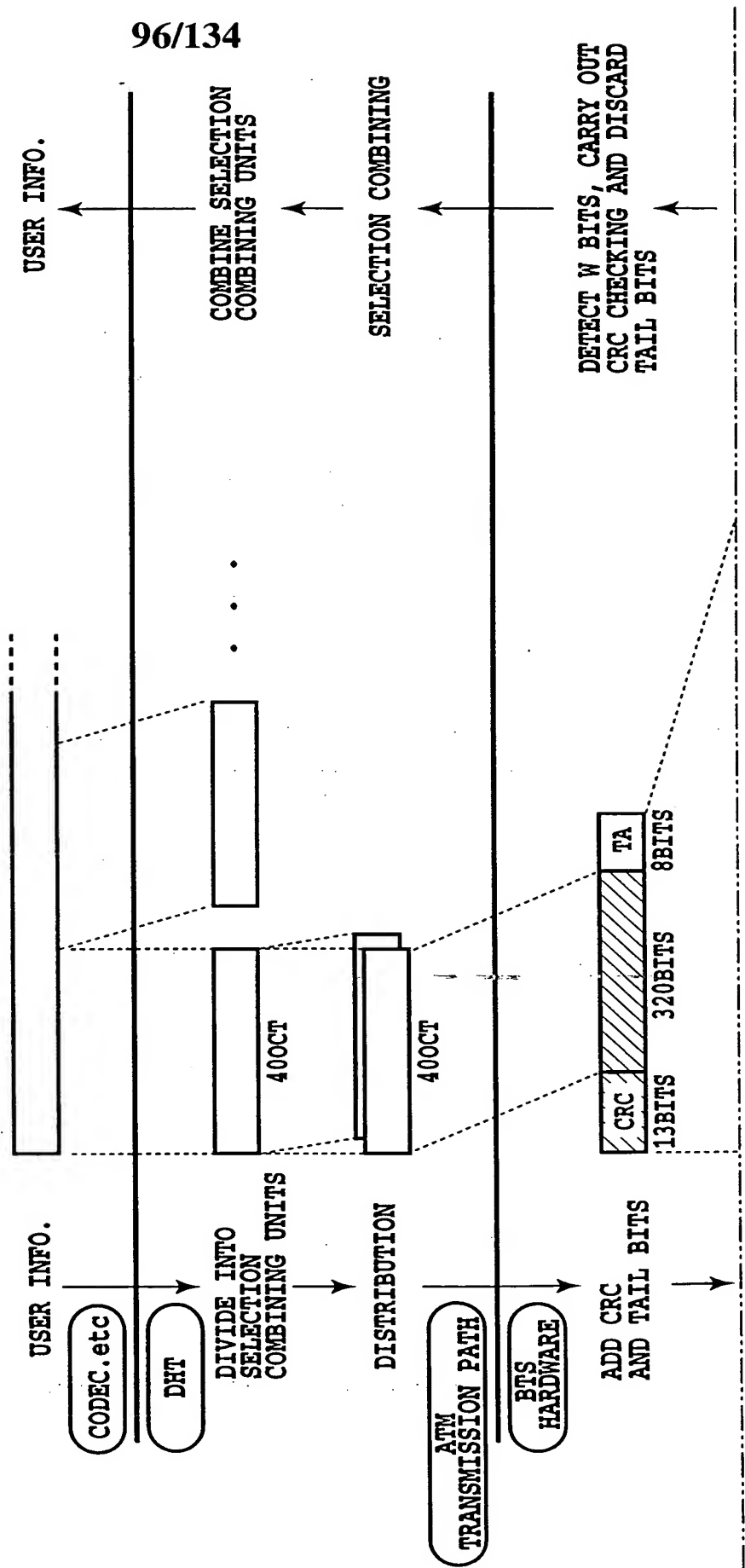


FIG.76

FIG.76A

FIG.76B

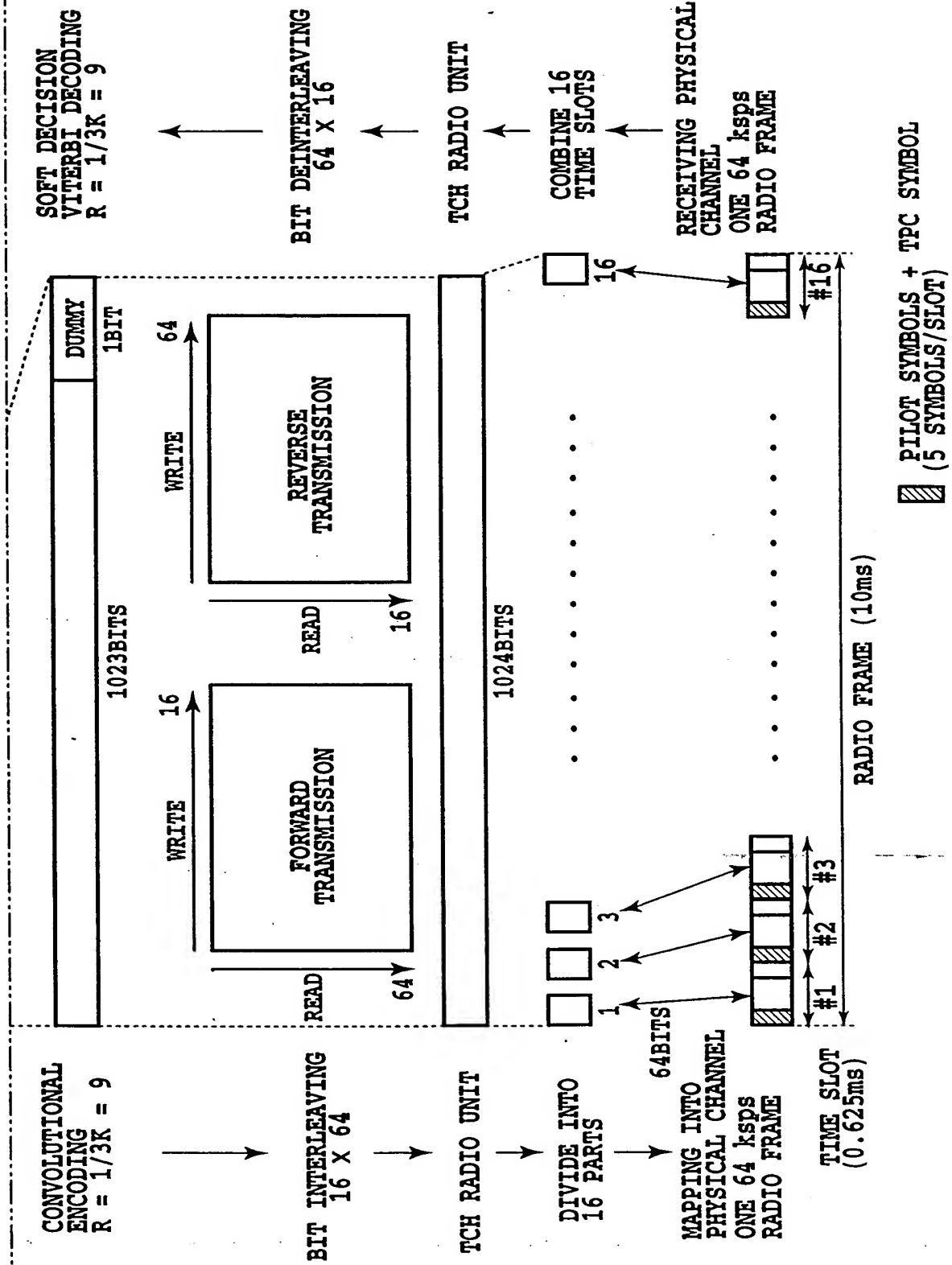


FIG.76B

FIG.77

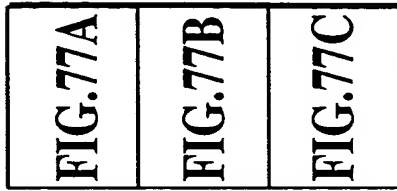
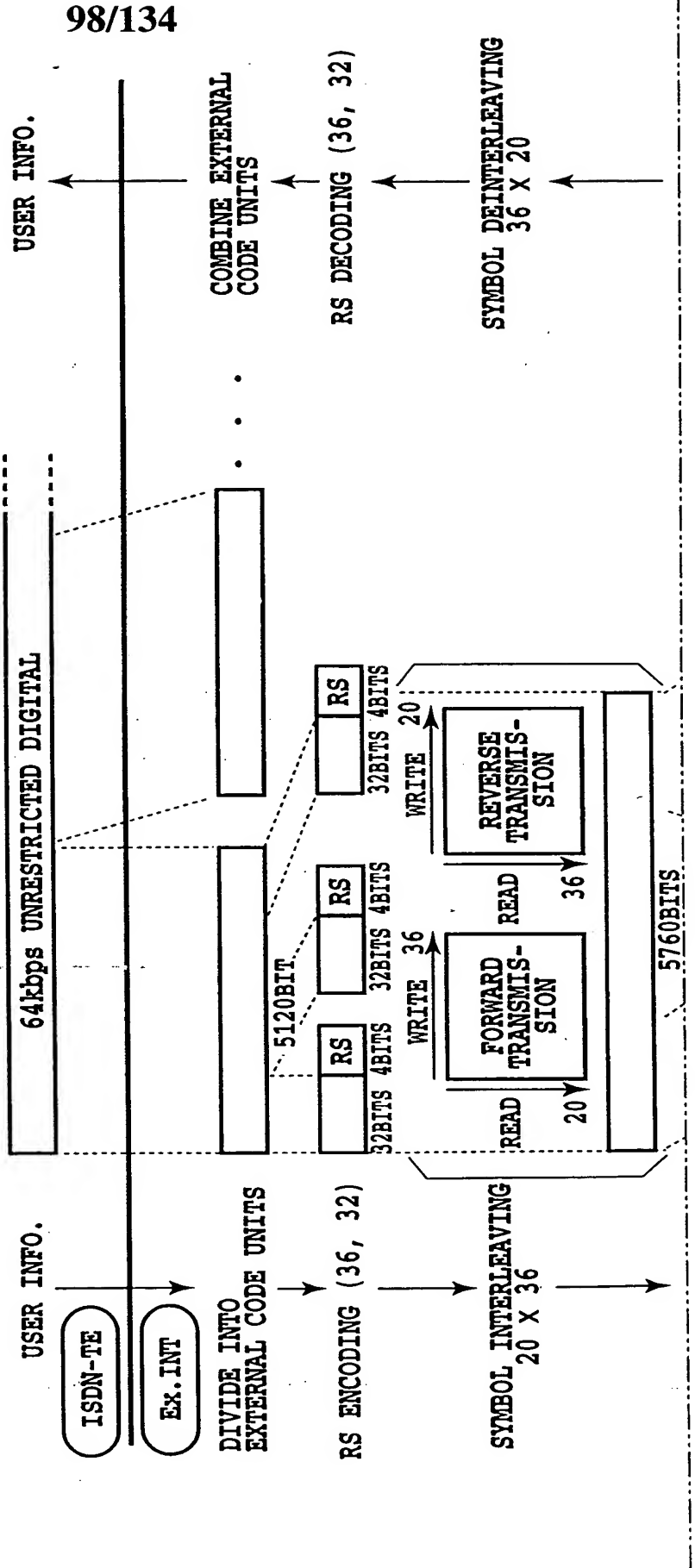


FIG.77A



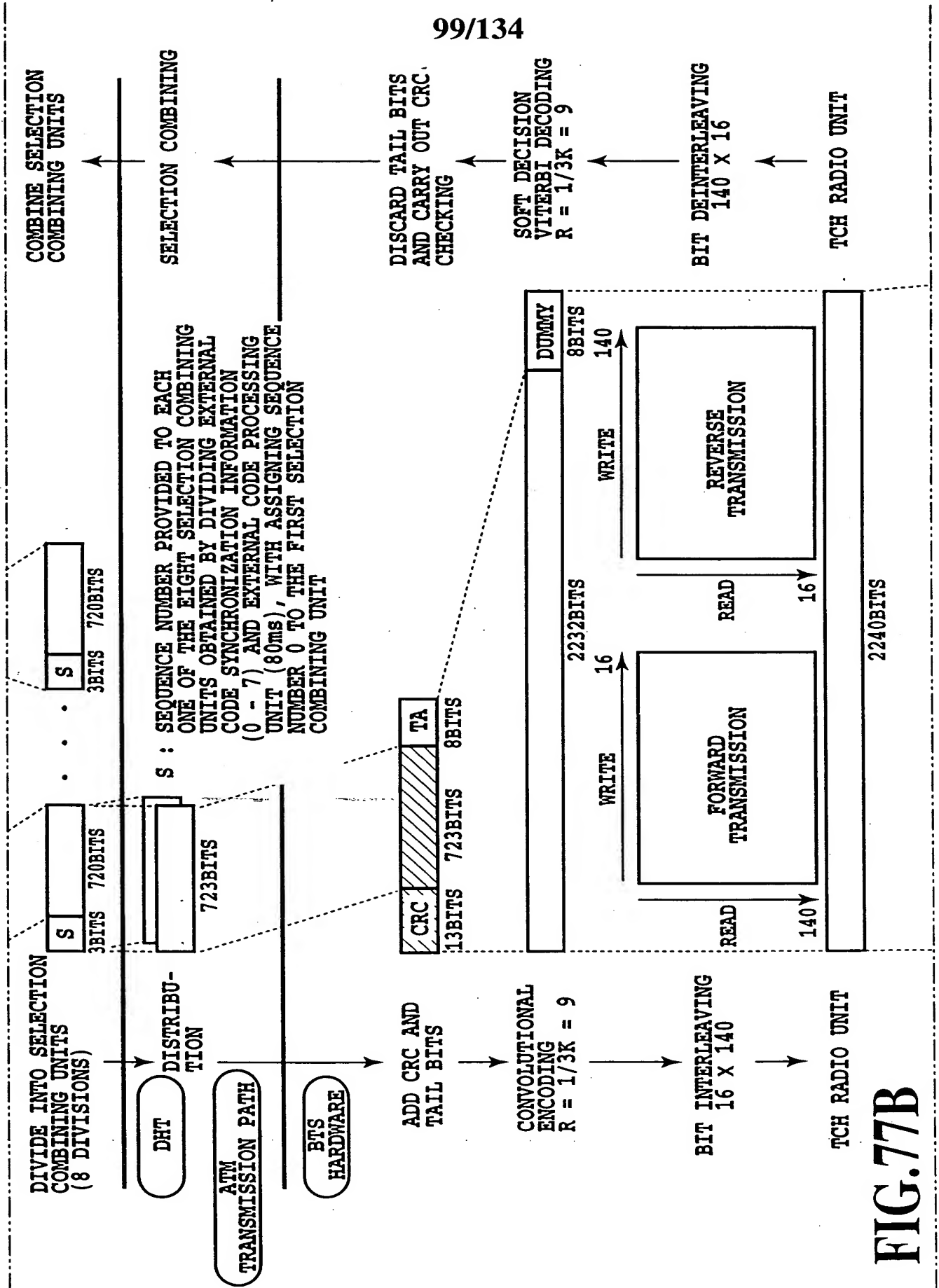


FIG.77B

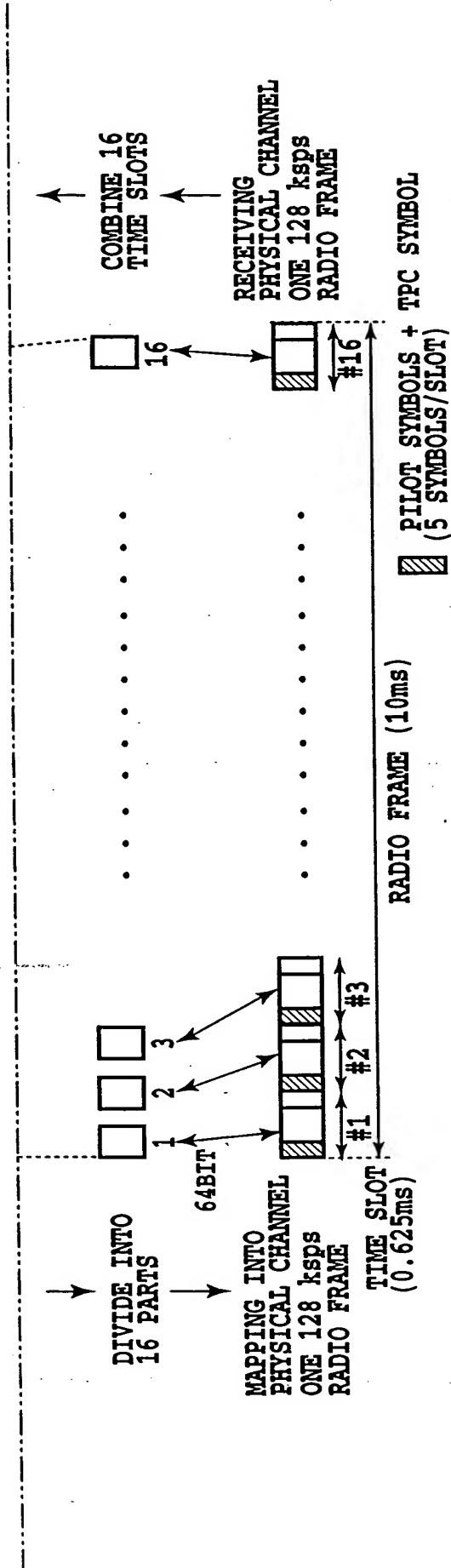


FIG.77C

FIG.78

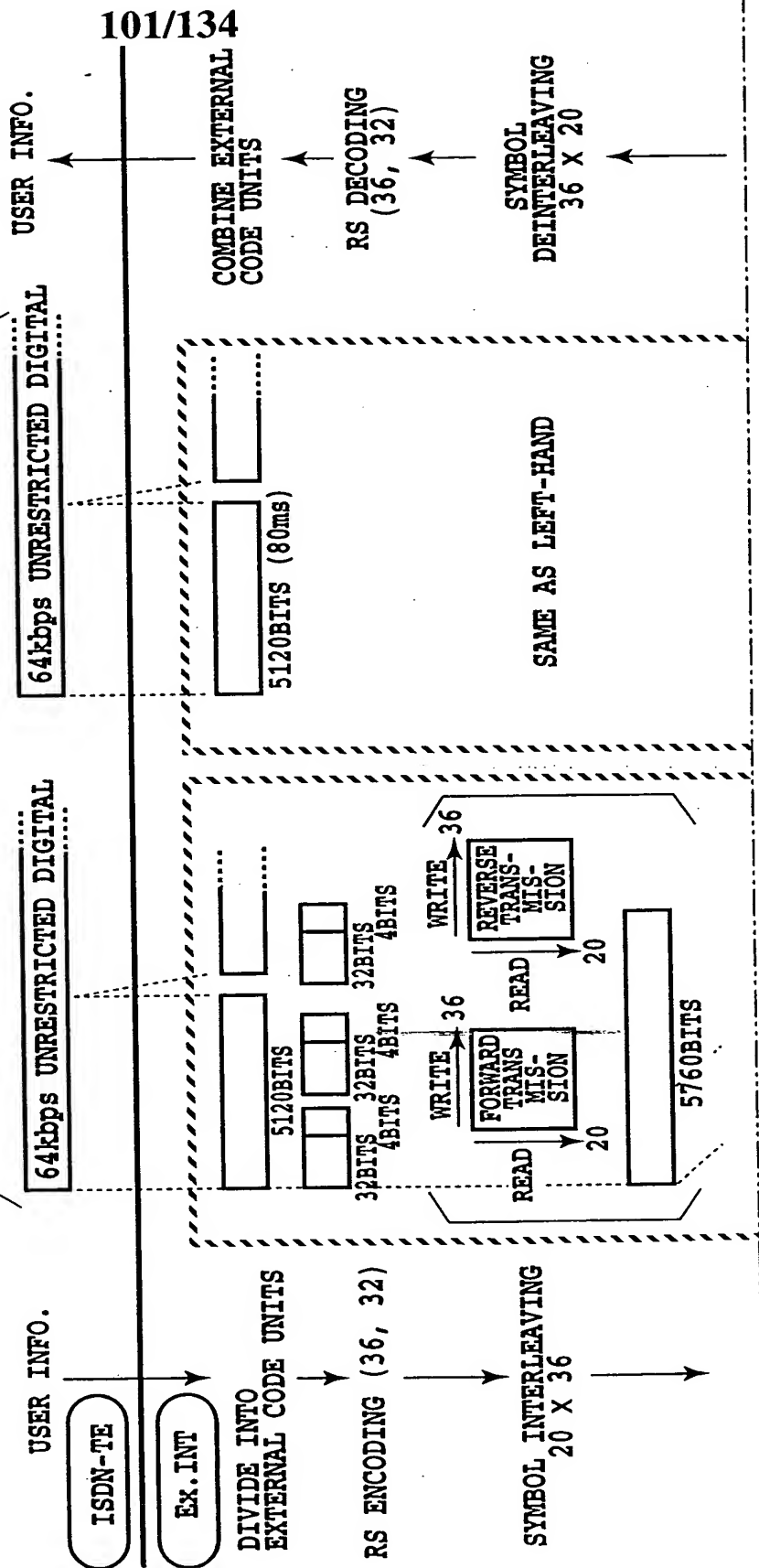
FIG.78A

FIG.78B

FIG.78C

FIG.78A

2B = 128kbps



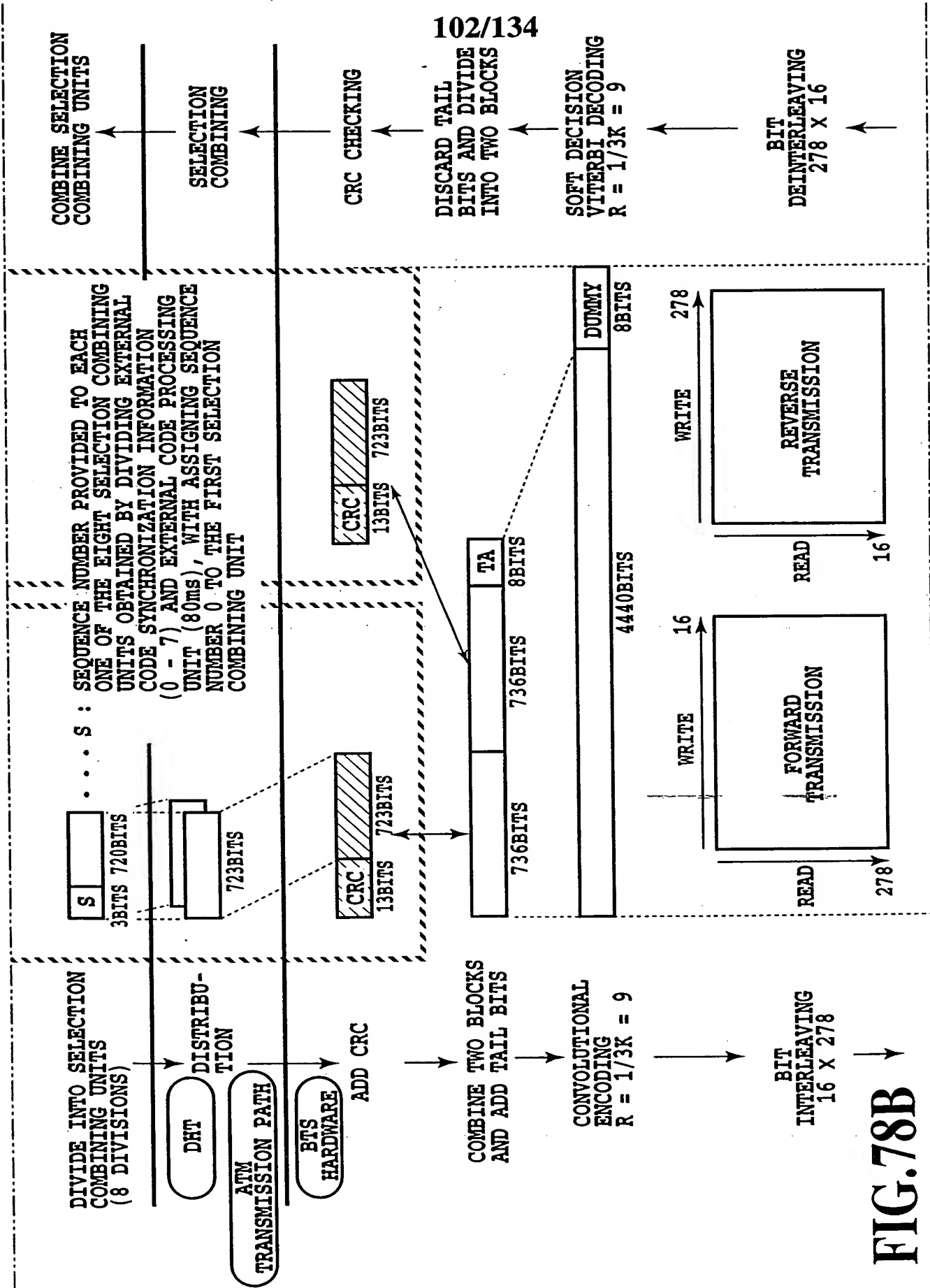


FIG.78B

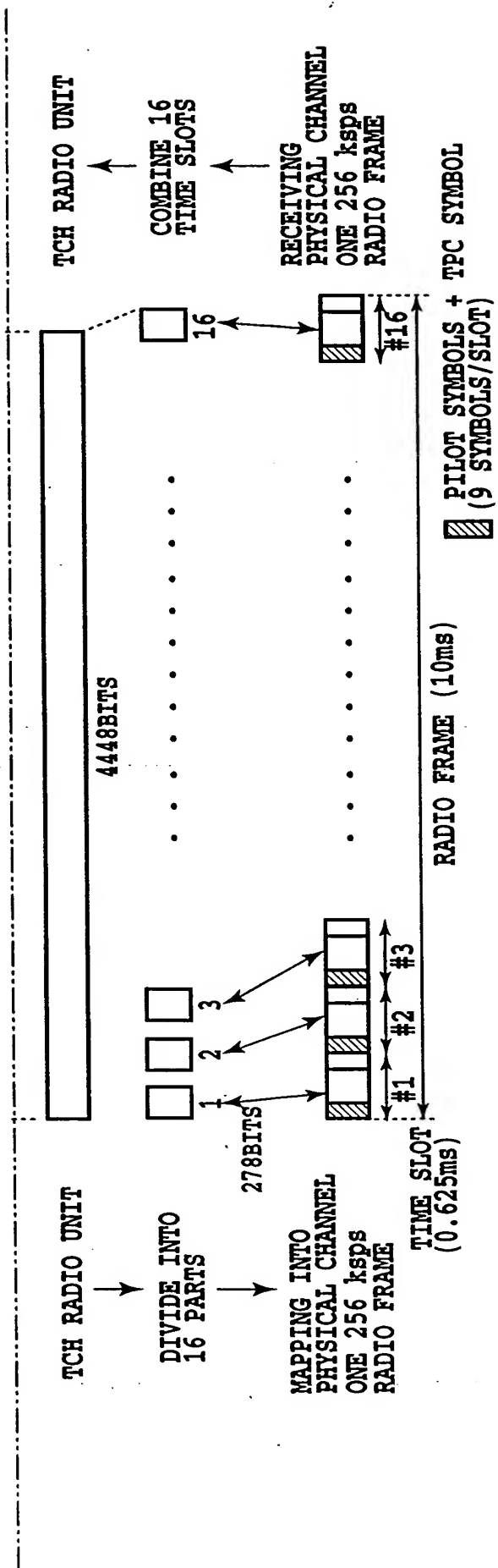


FIG.78C

FIG.79

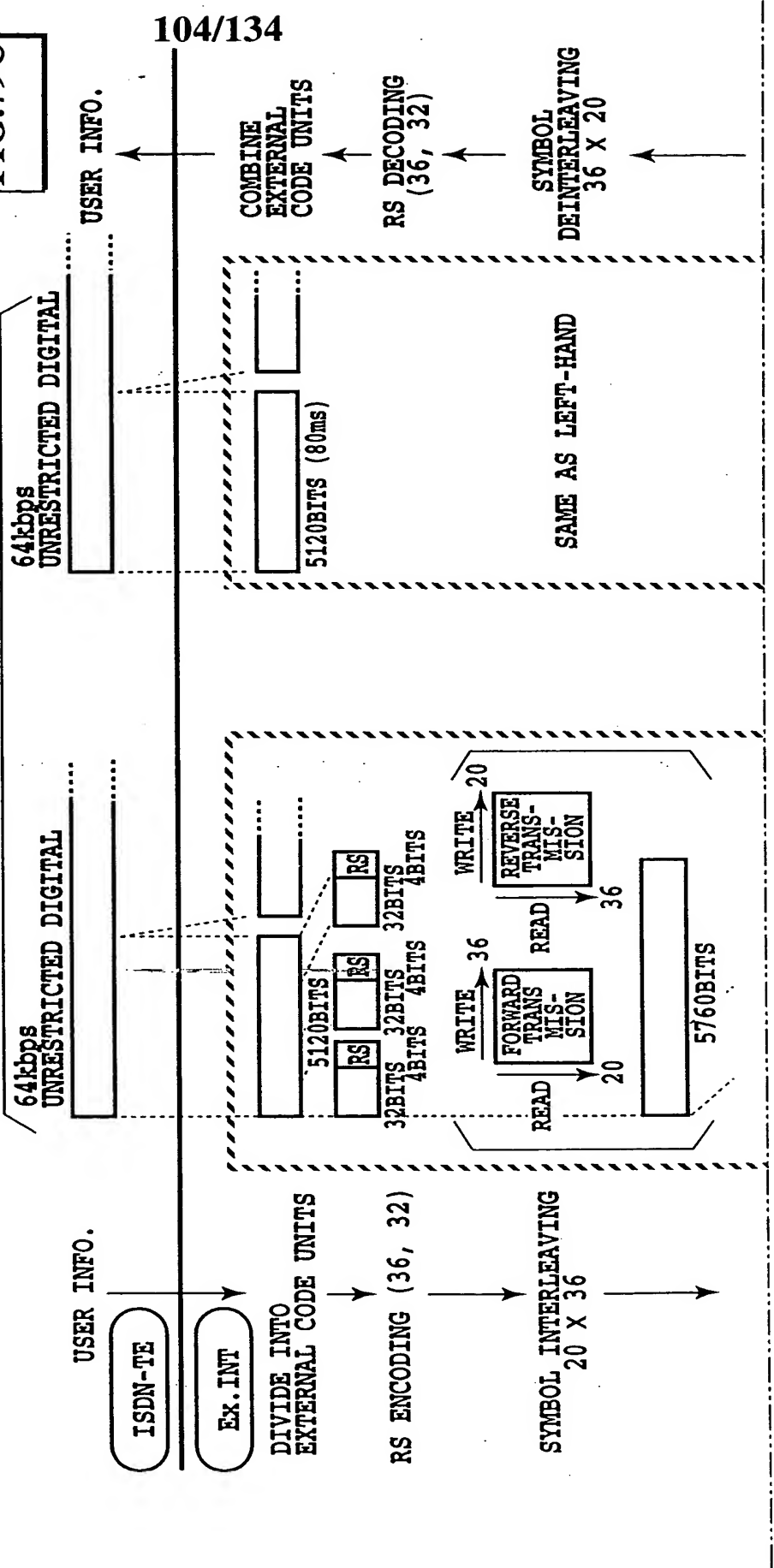
FIG.79A

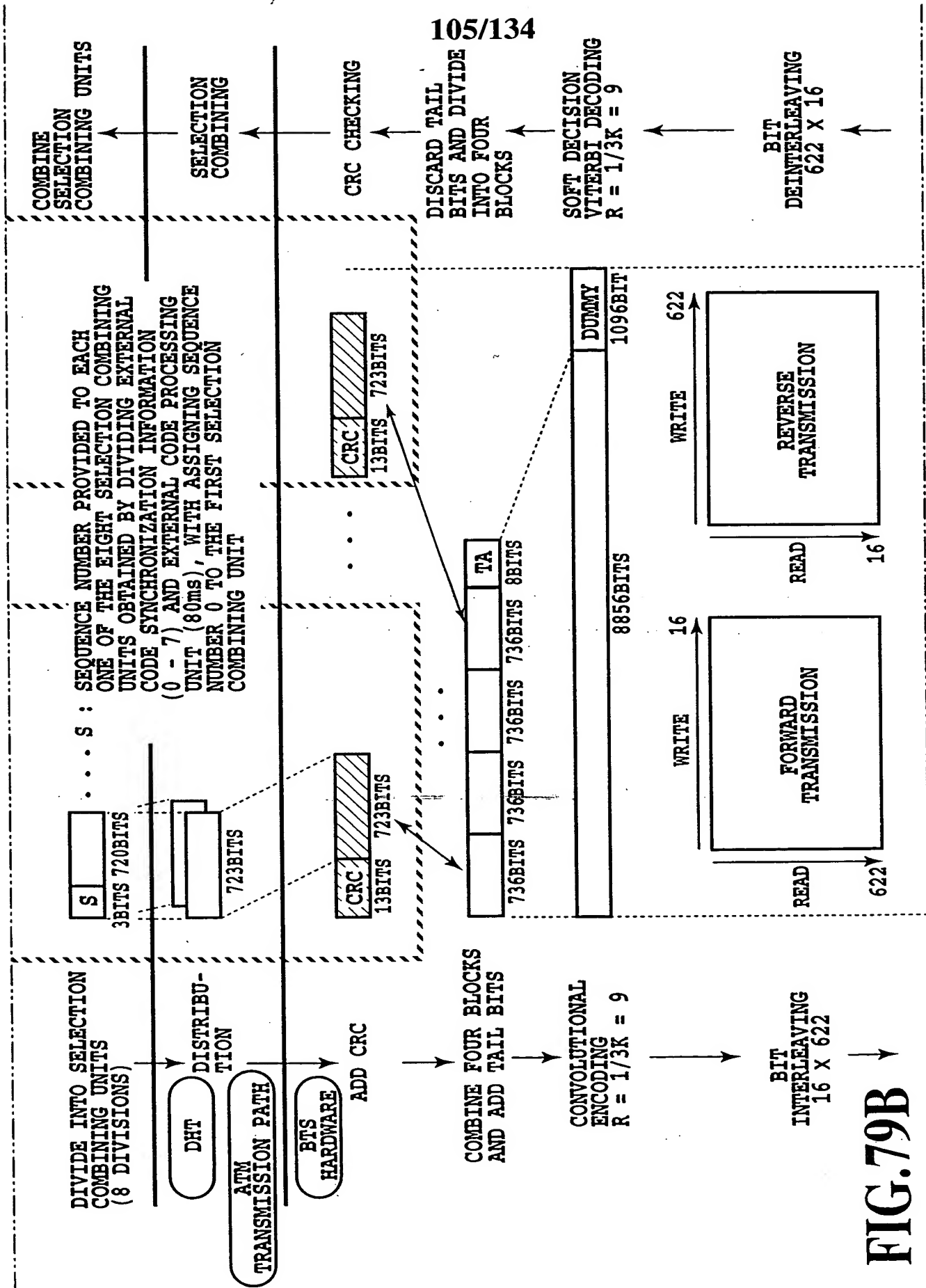
FIG.79B

FIG.79C

FIG.79A

4B = 256kbps





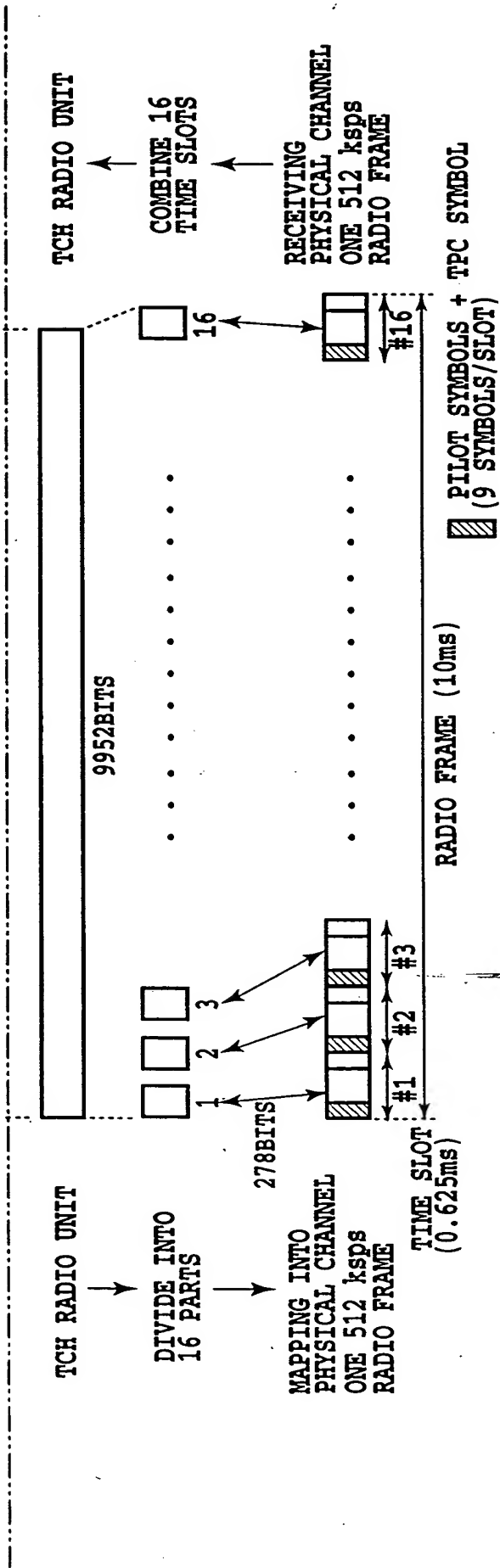


FIG.79C

FIG.80

FIG.80A

FIG.80B

FIG.80C

FIG.80A

6B = 384kbps

64kbps UNRESTRICTED DIGITAL

64kbps UNRESTRICTED DIGITAL

USER INFO.

USER INFO.

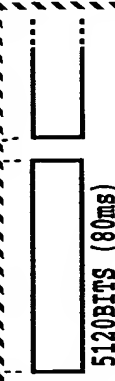
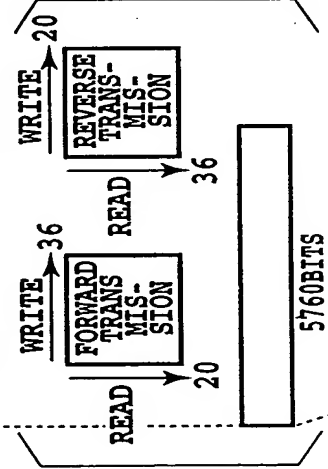
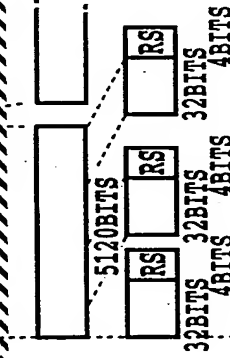
ISDE-TE

Ex.INT

DIVIDE INTO
EXTERNAL CODE UNITS

RS ENCODING (36, 32)

SYMBOL INTERLEAVING
20 X 36



COMBINE
EXTERNAL
CODE UNITS

RS ENCODING
(36, 32)

SYMBOL
DEINTERLEAVING
36 X 20

SAME AS LEFT-HAND

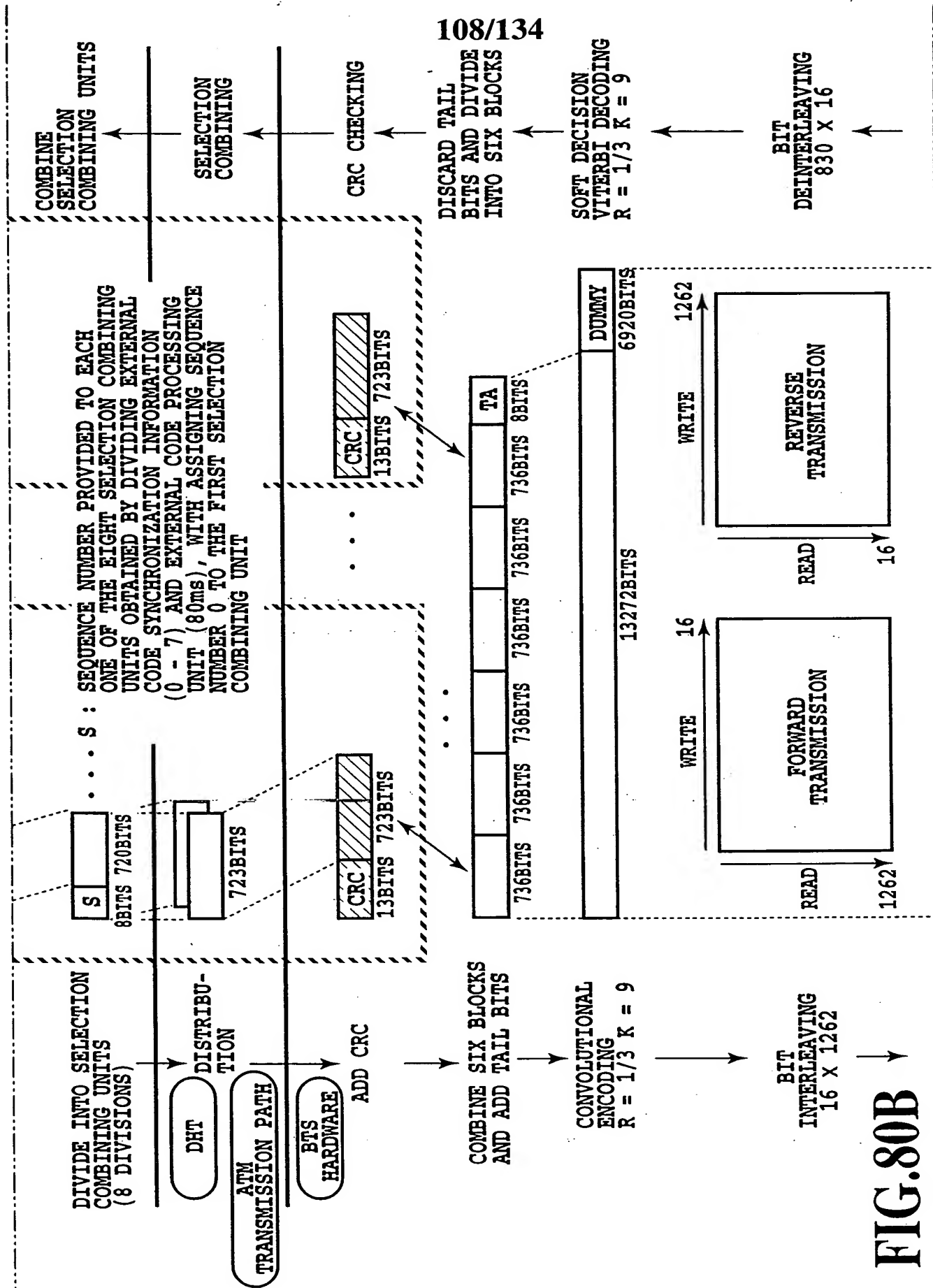


FIG.80B

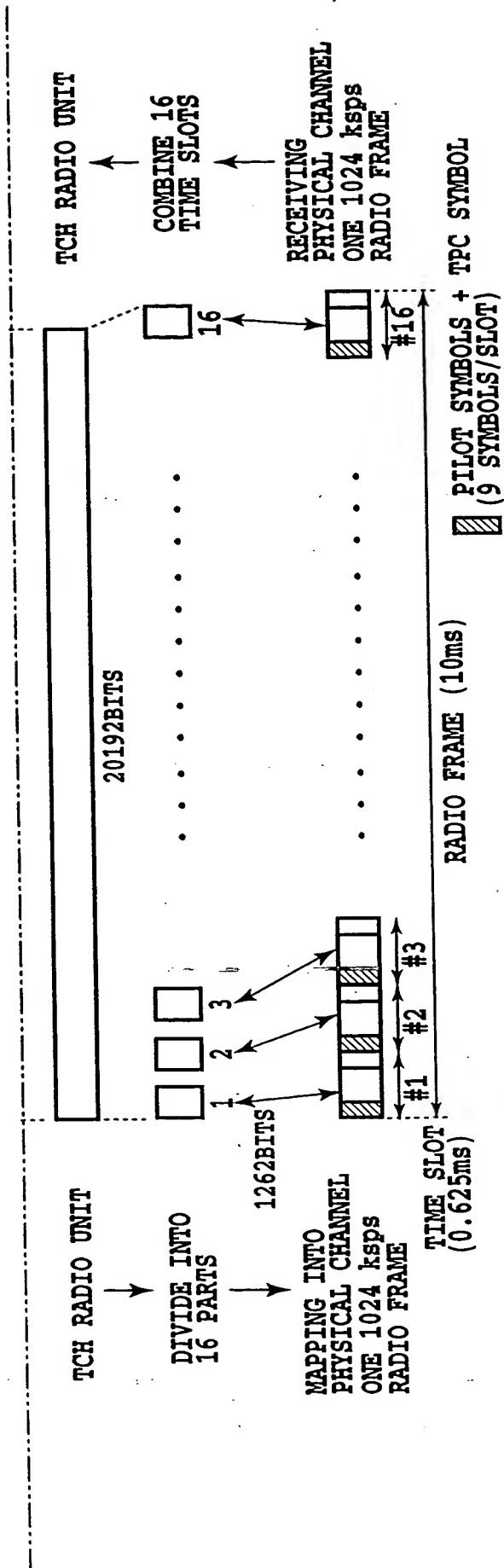


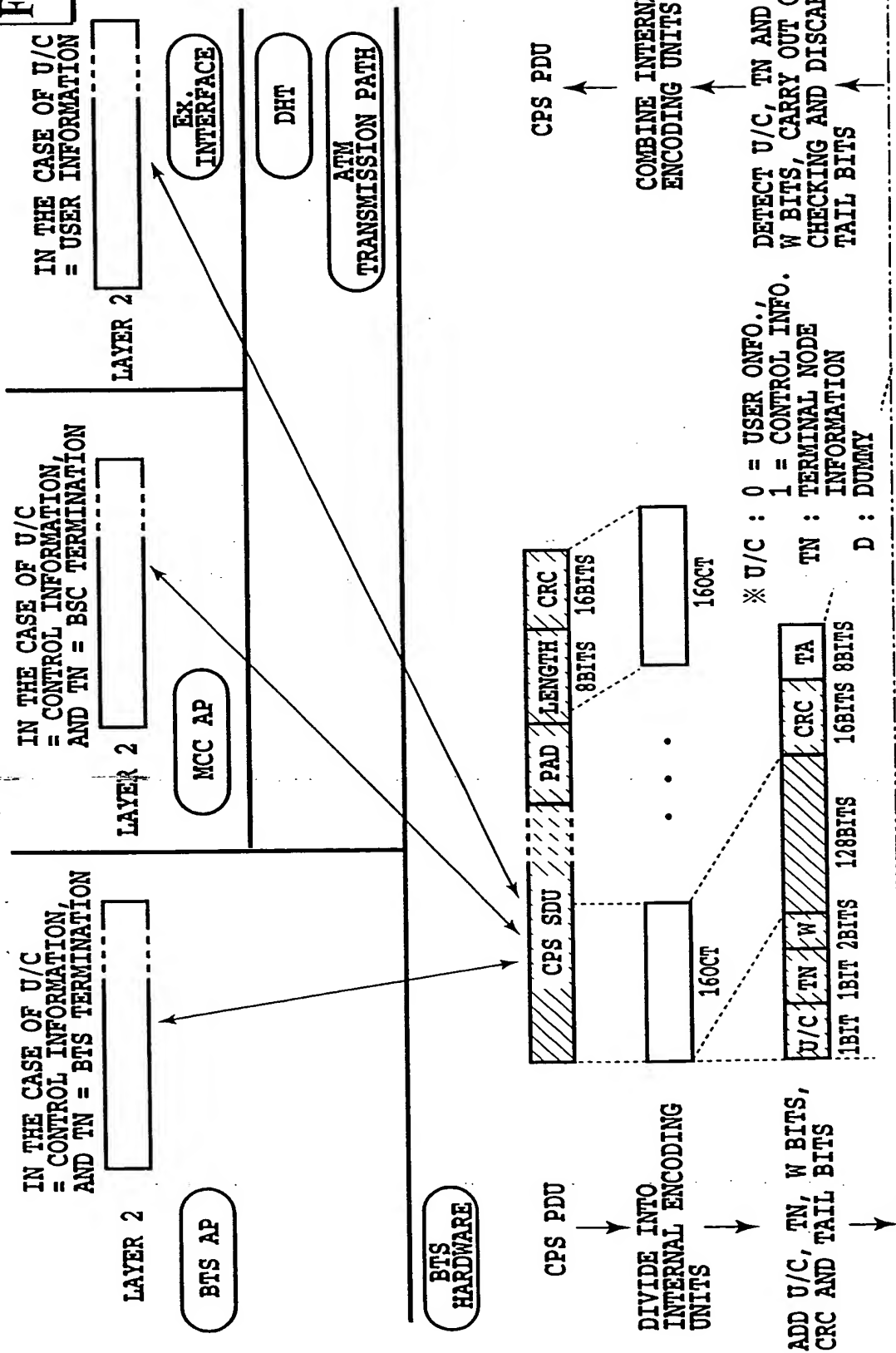
FIG.80C

FIG.81

FIG.81A

FIG.81A

FIG.81B



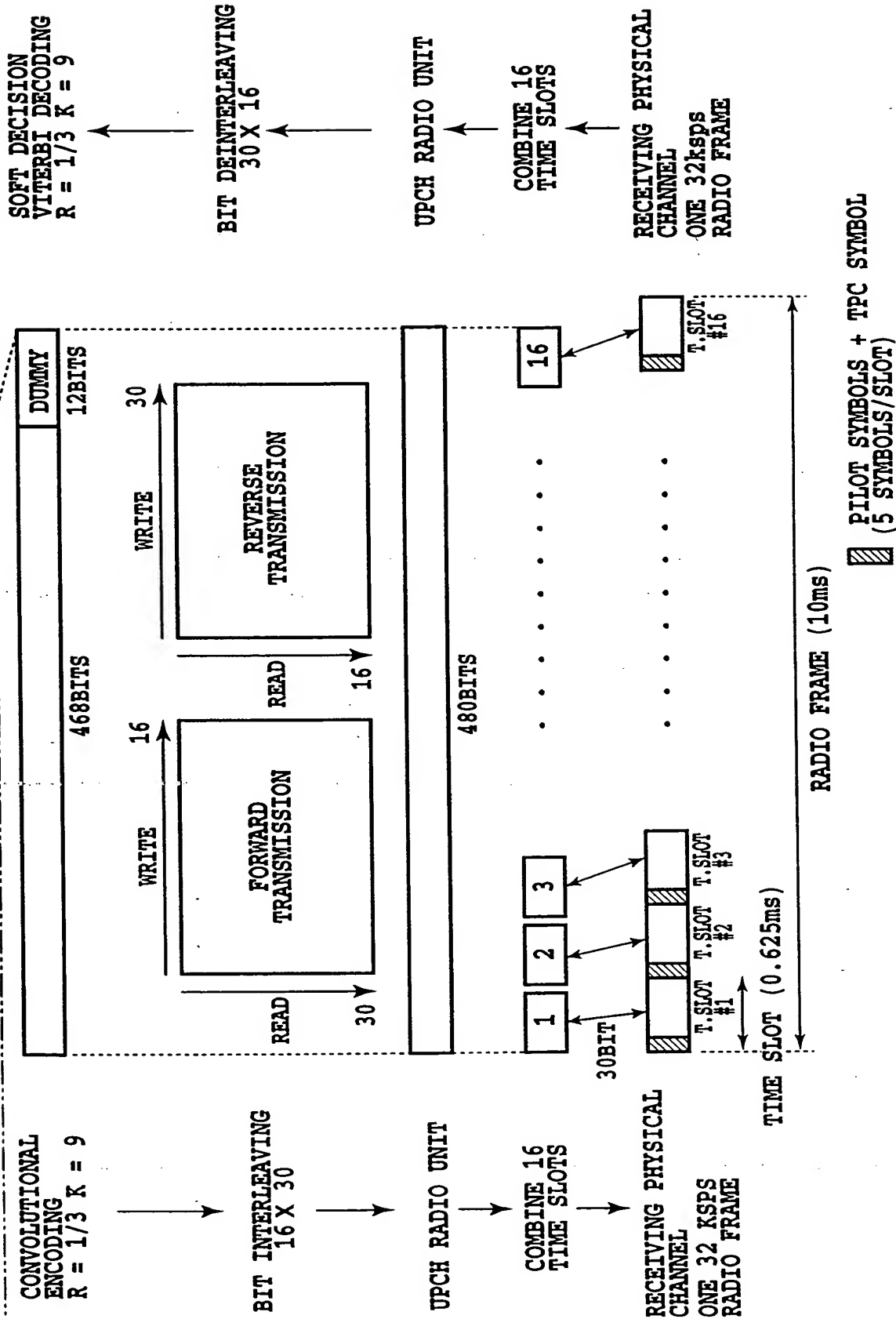
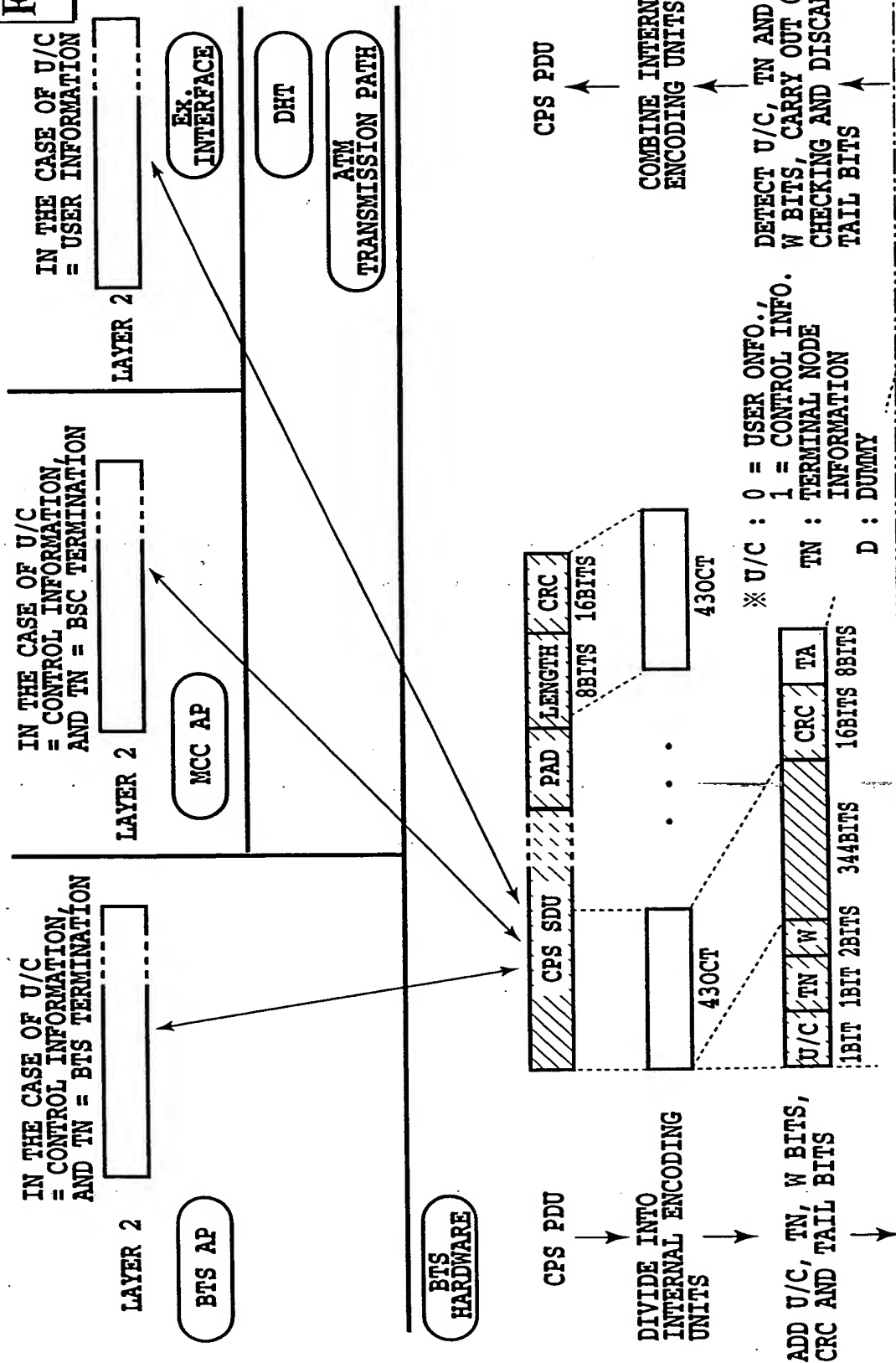


FIG.81B

FIG.82

FIG.82A

FIG.82B



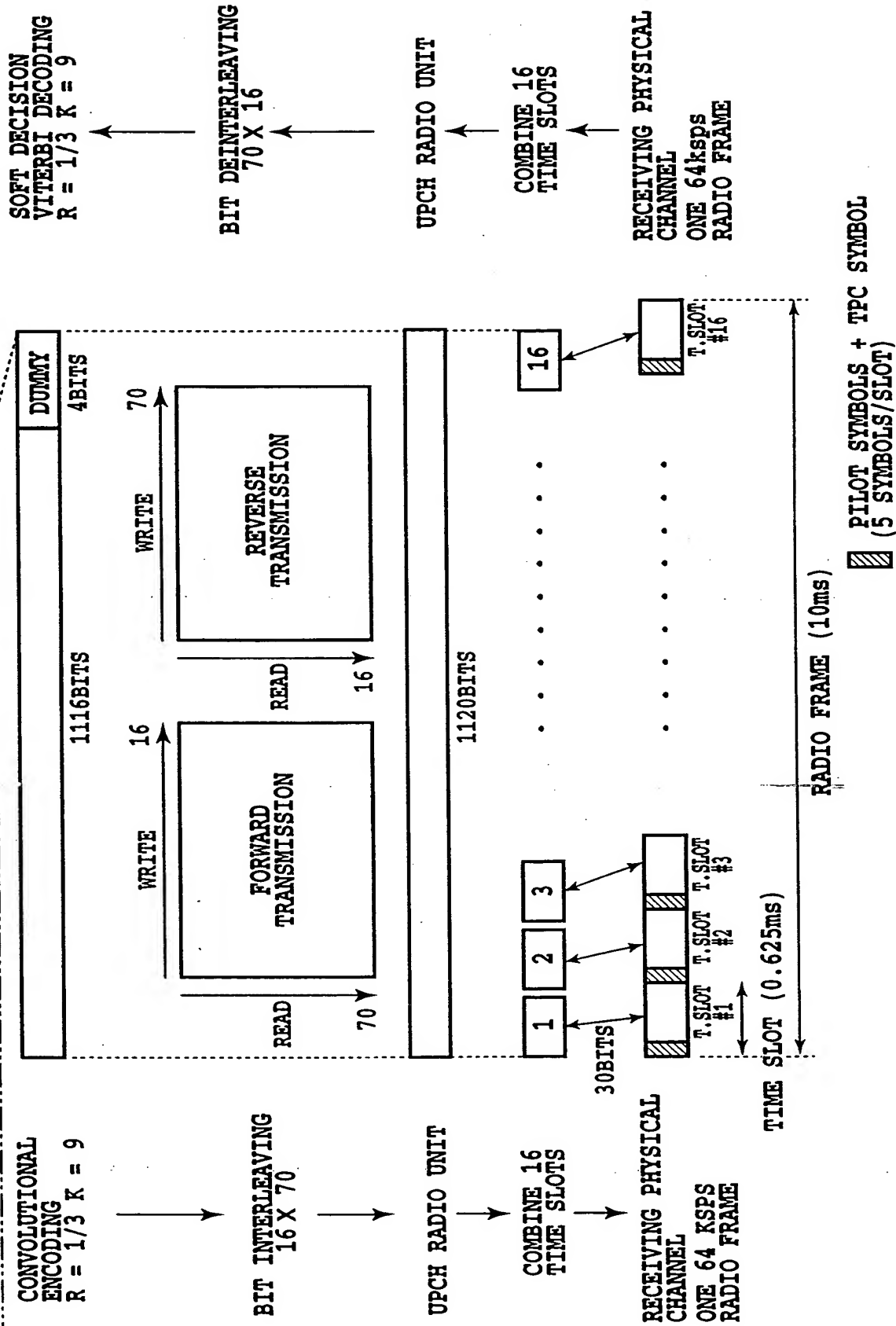


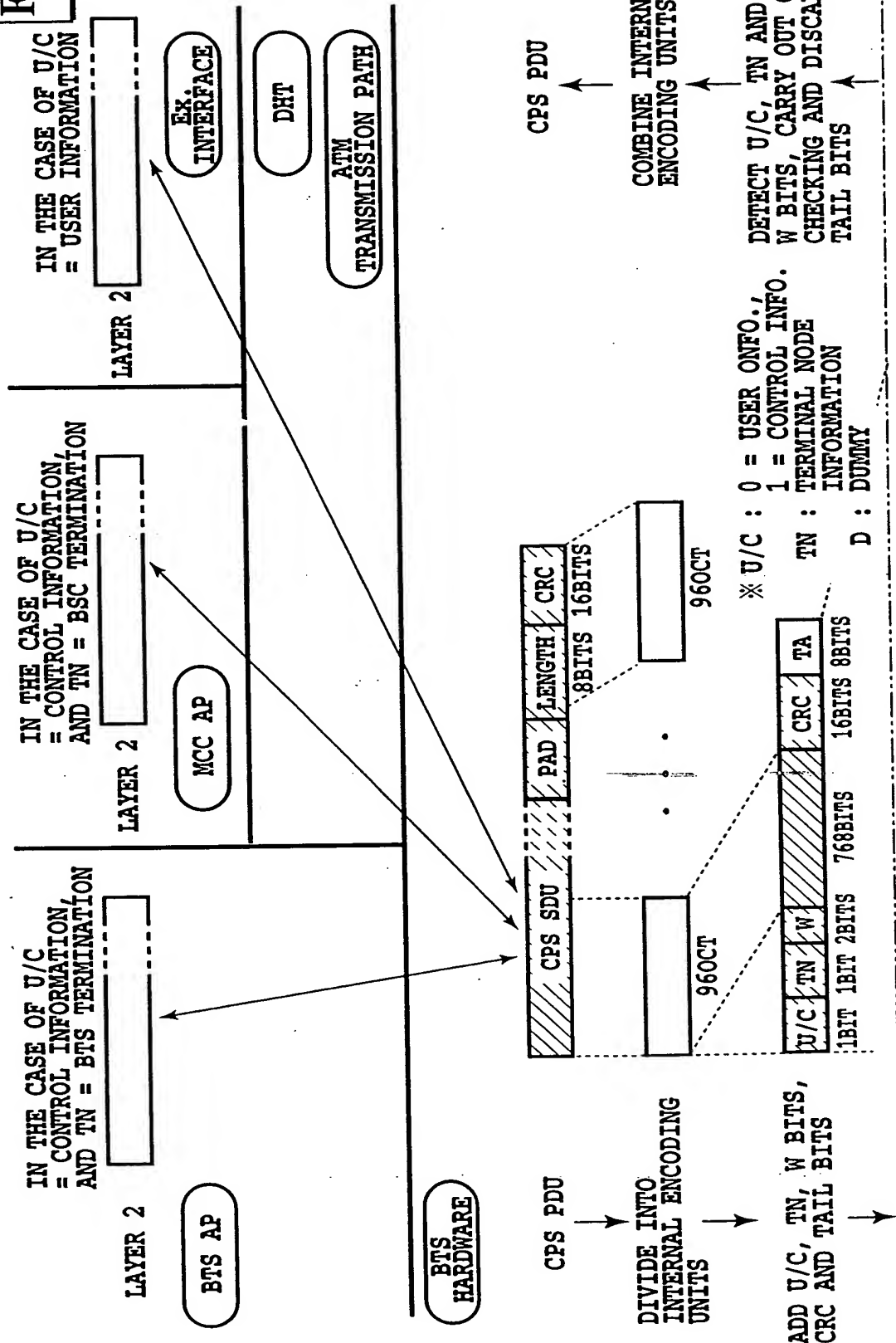
FIG.82B

FIG.83

FIG.83A

FIG.83A

FIG.83B



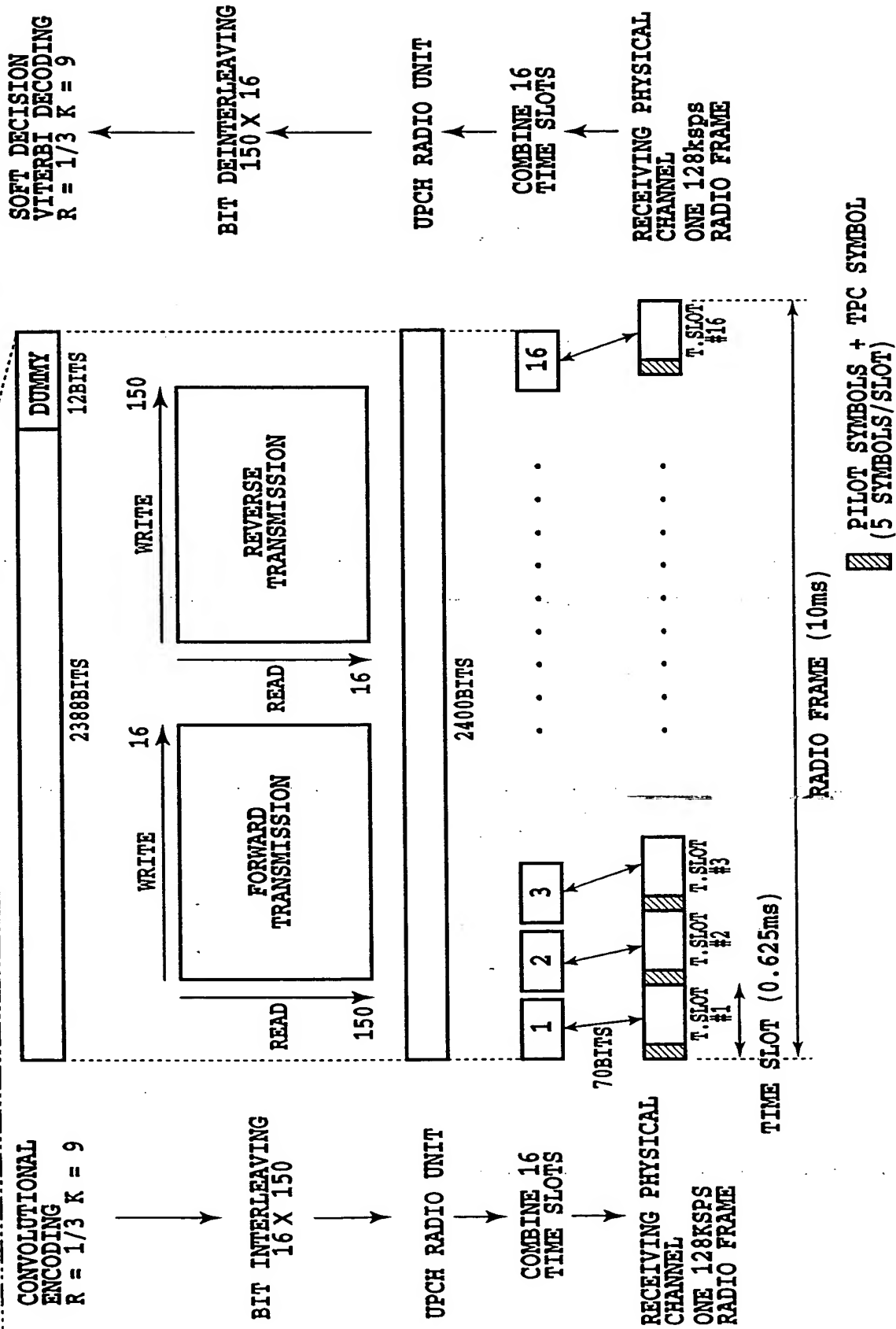


FIG.83B

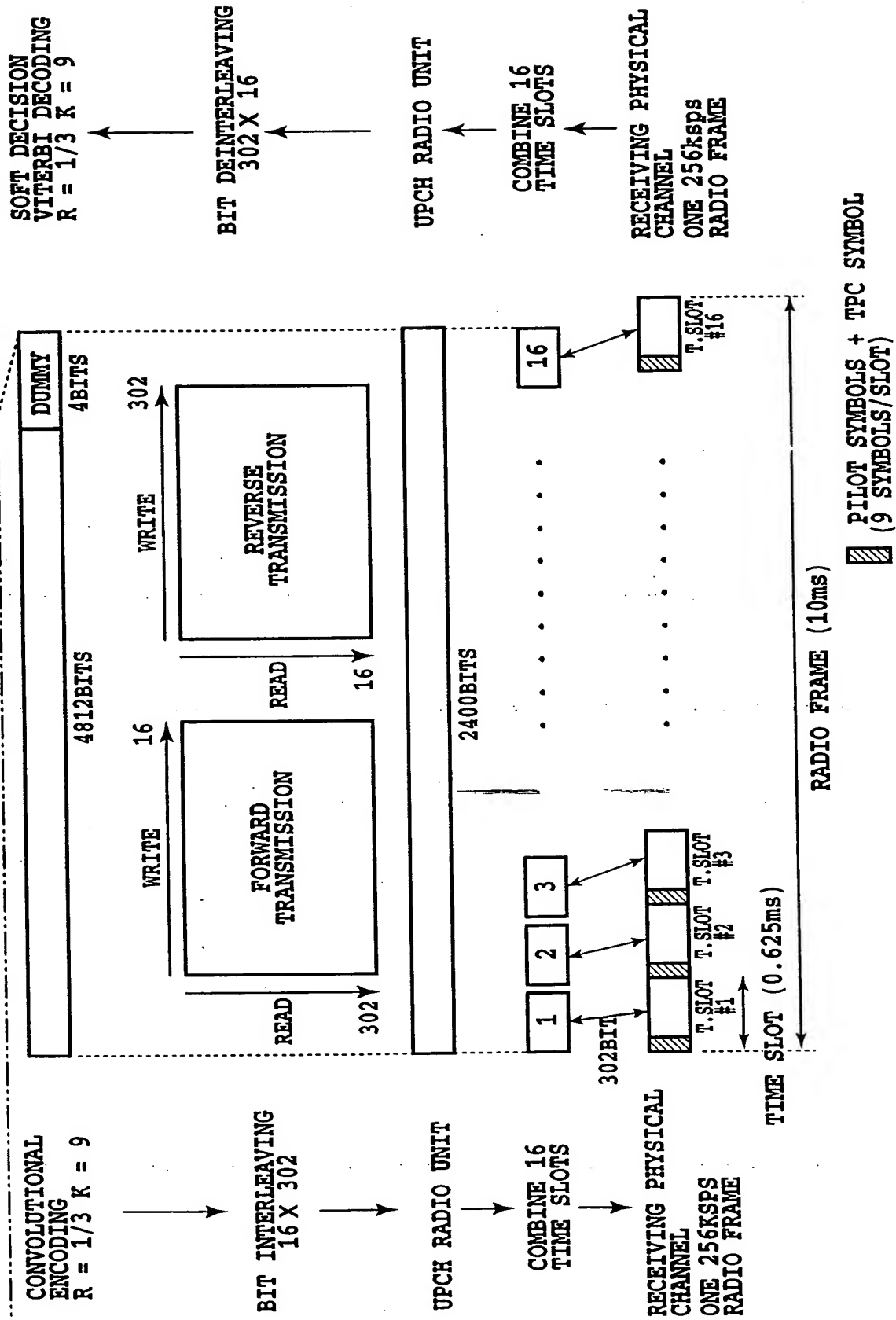


FIG.84B

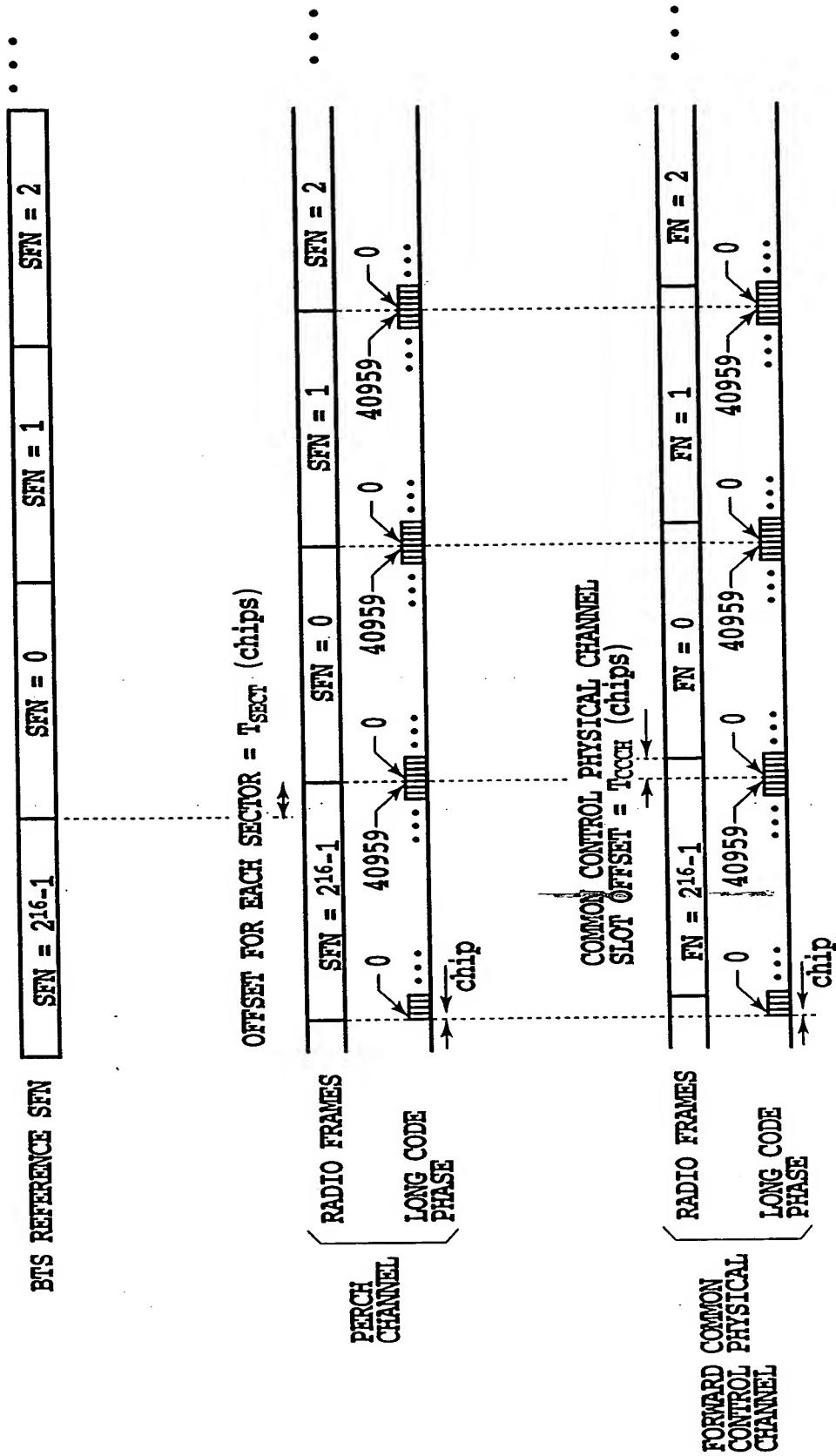


FIG.85

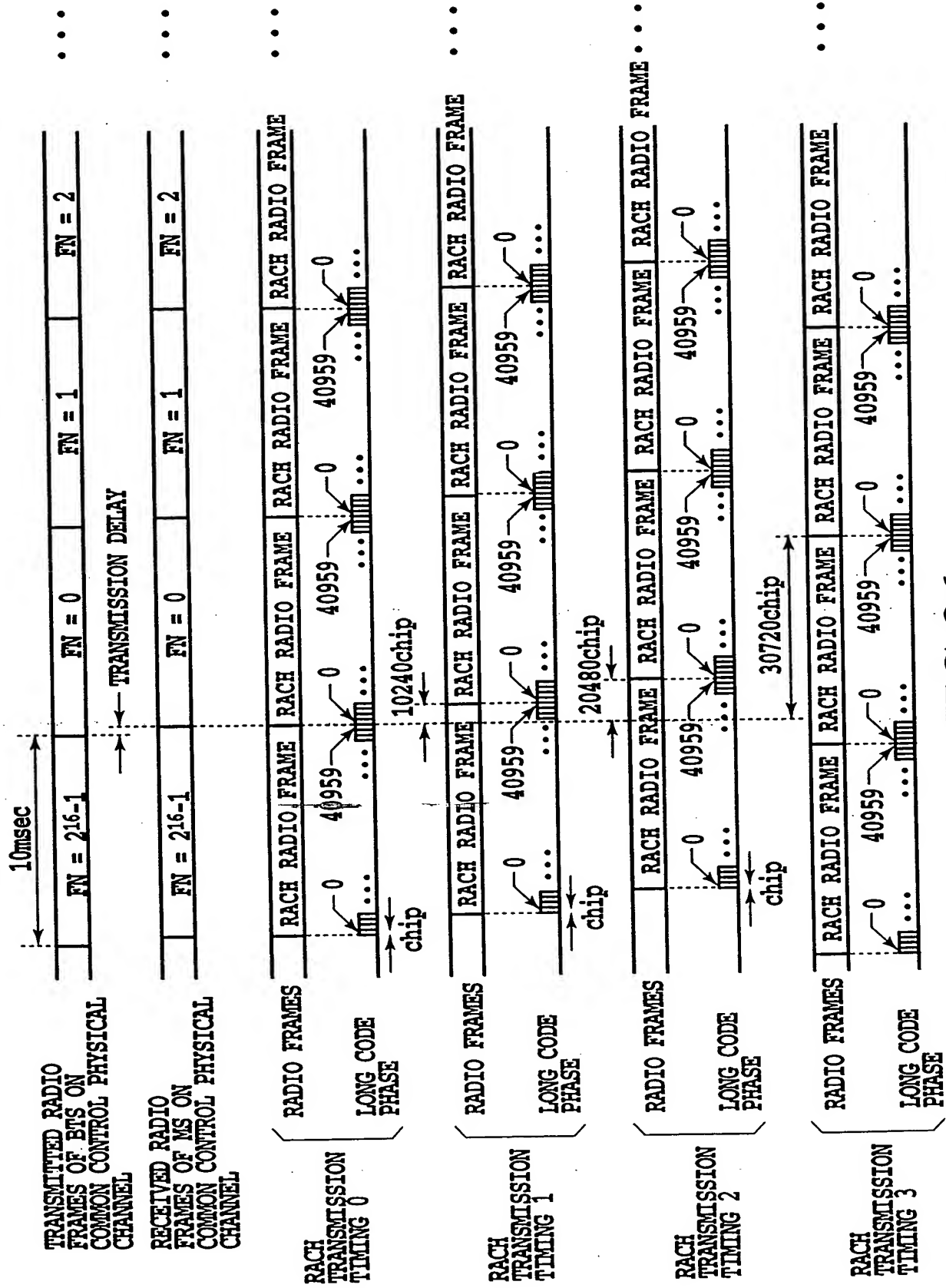


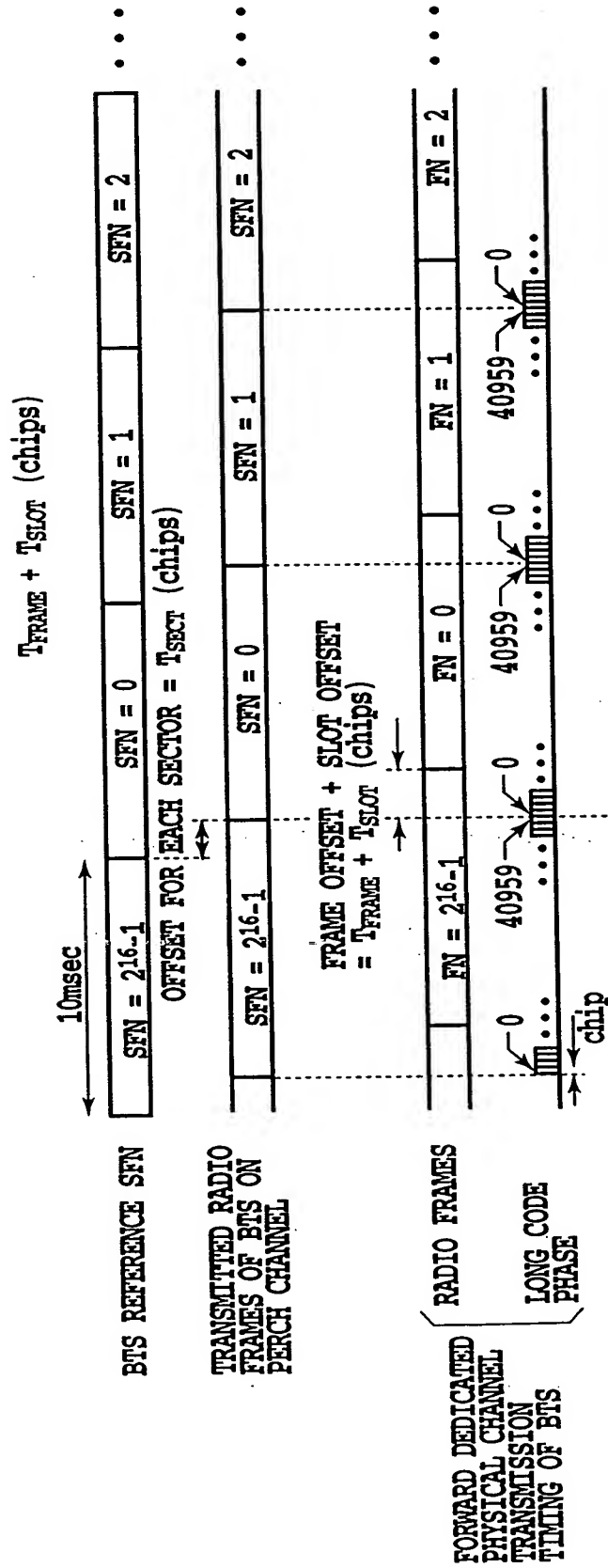
FIG.86

FIG.87

FIG.87A
FIG.87B

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FIG.87A



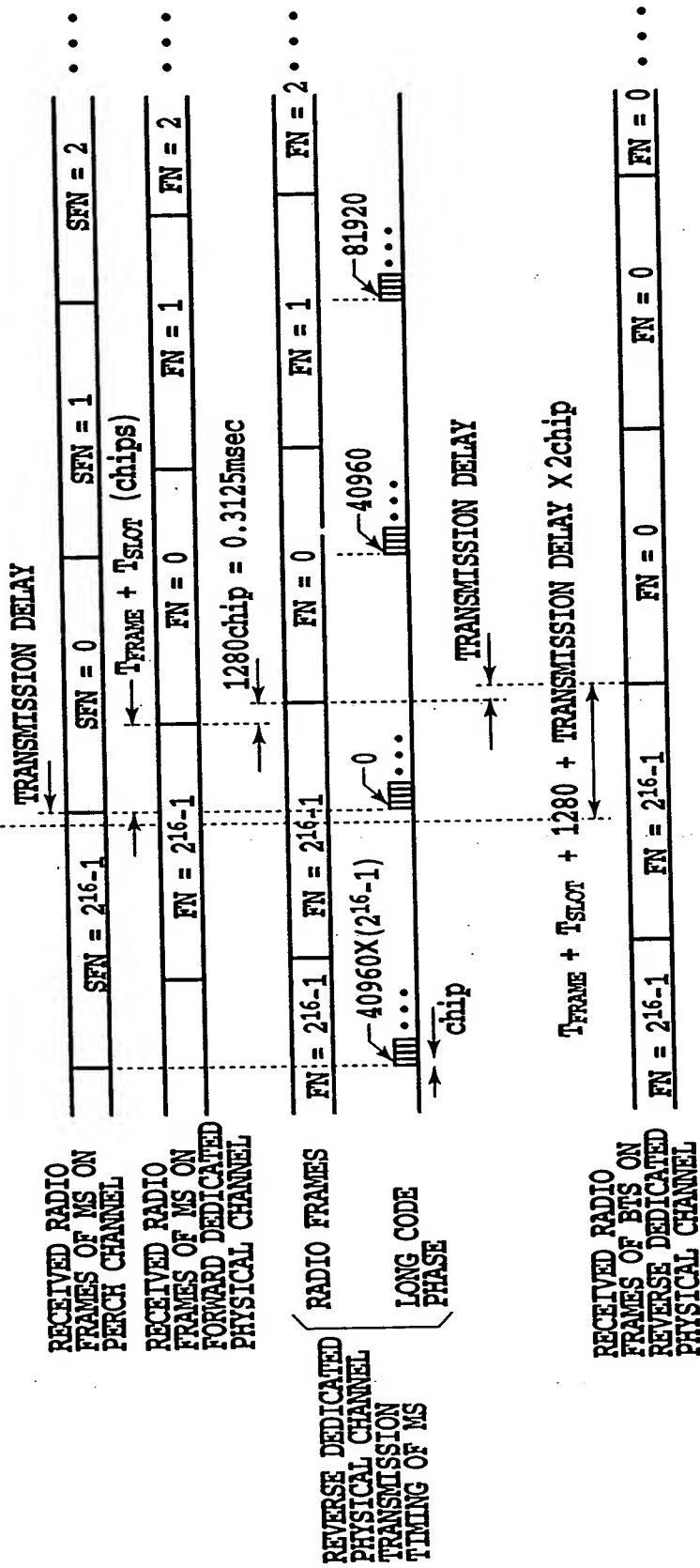


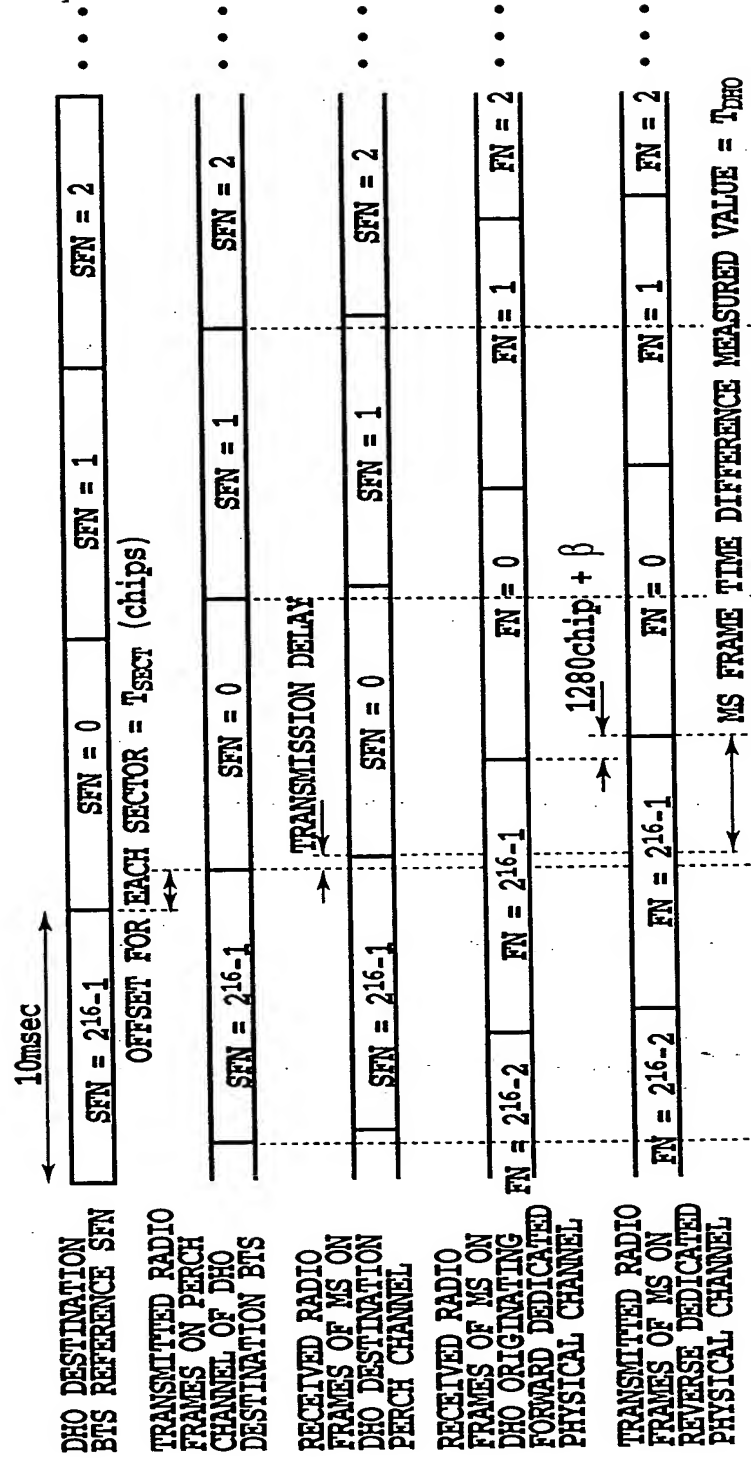
FIG.87B

FIG.88

FIG.88A

FIG.88B

FIG.88A



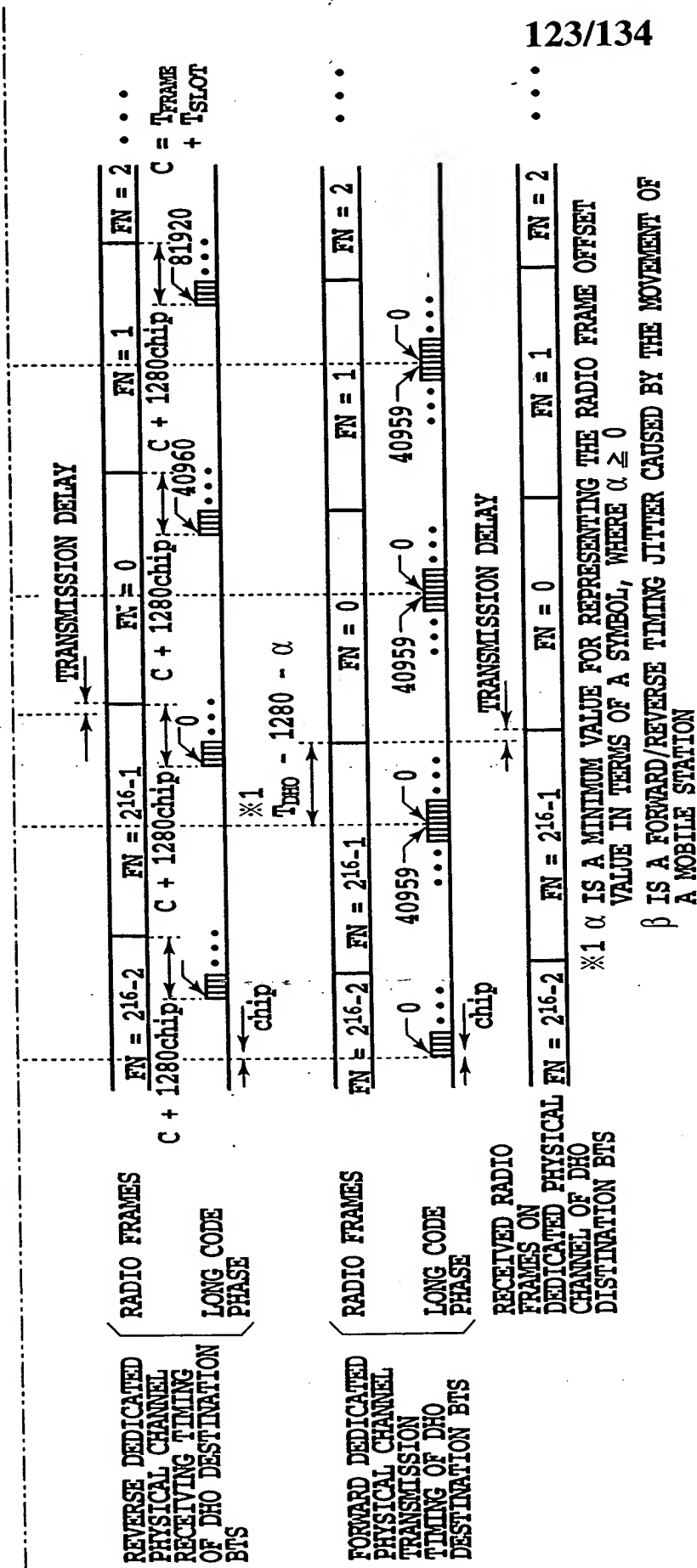


FIG.88B

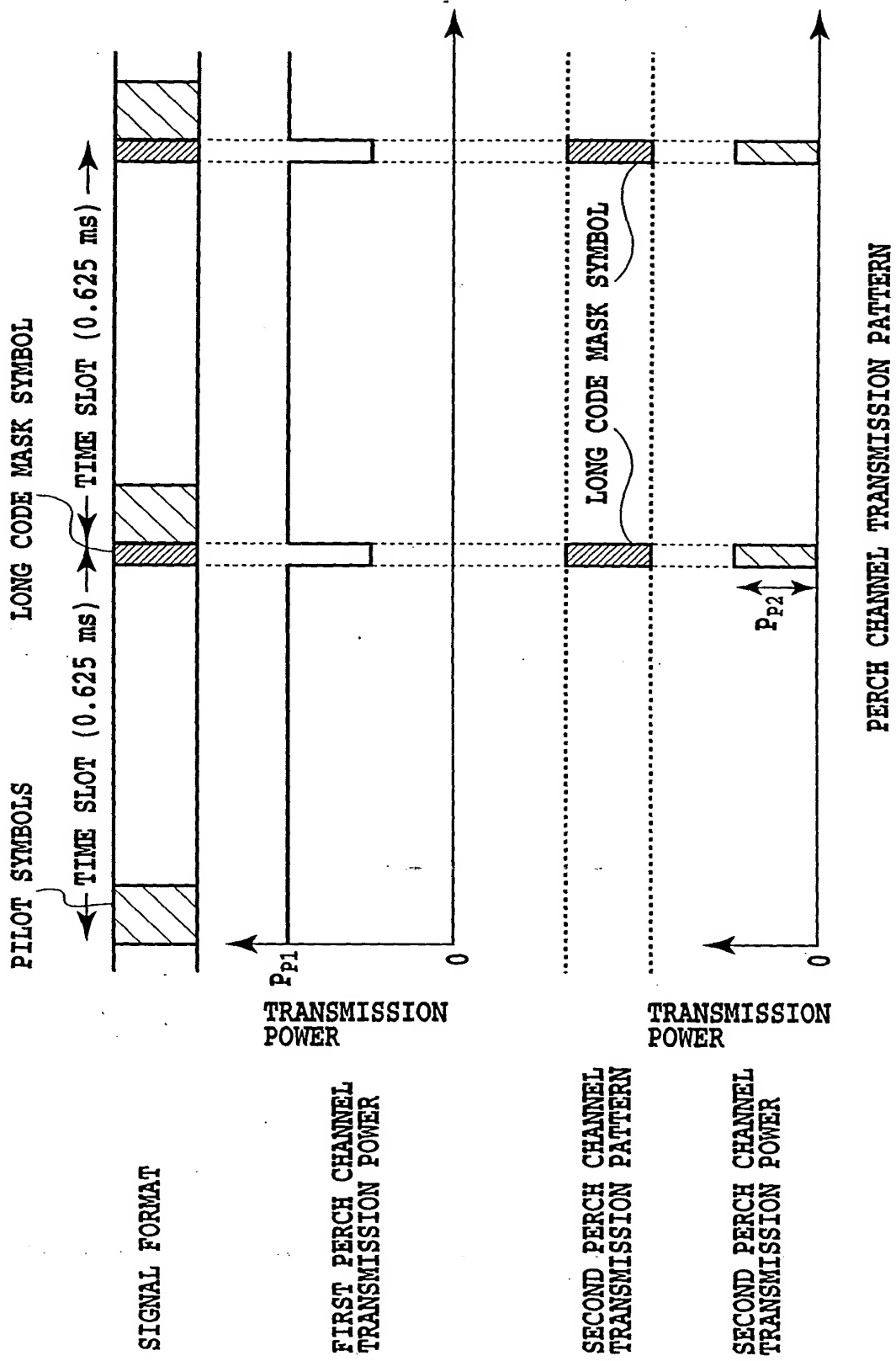


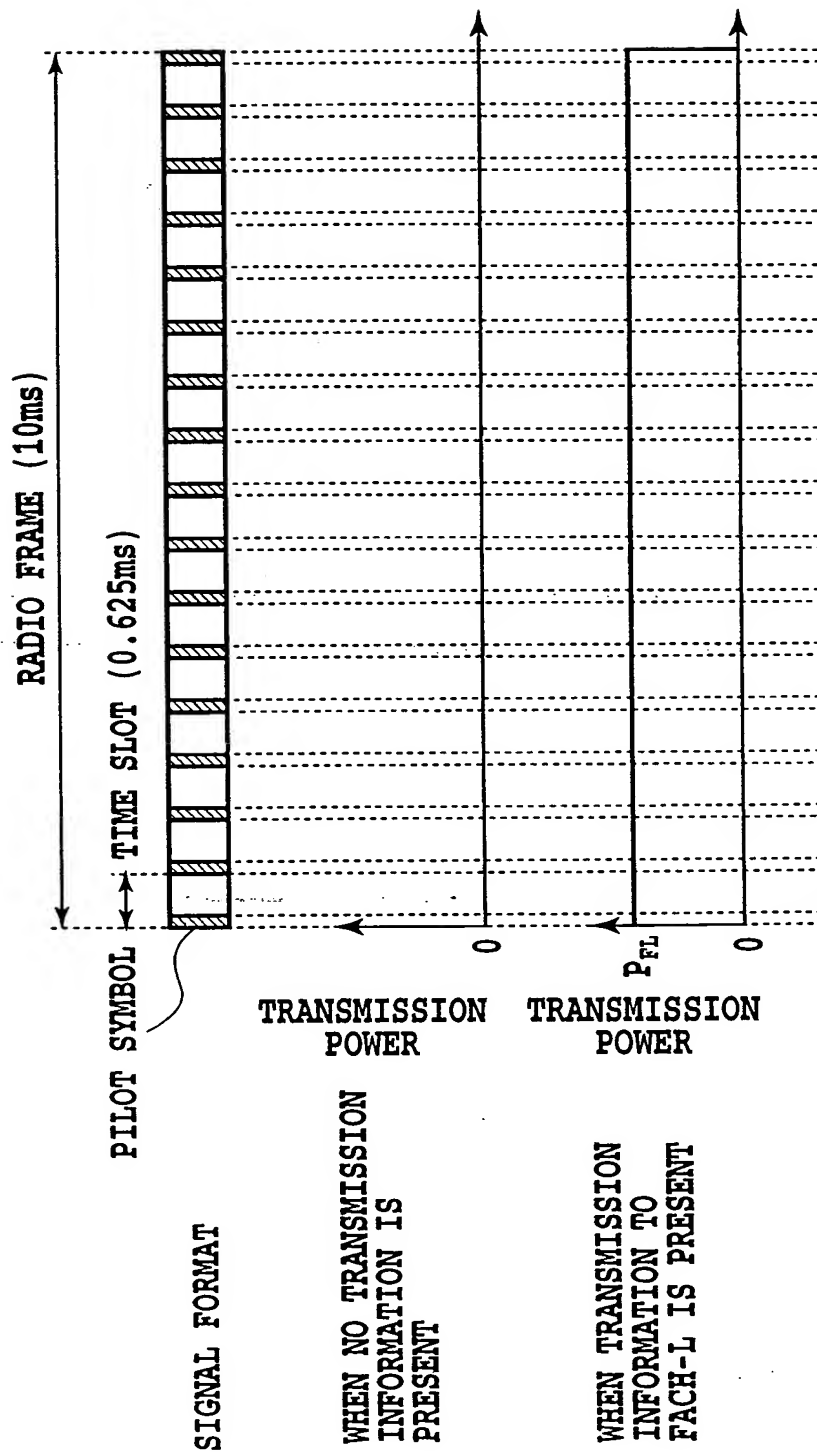
FIG.89

FIG.90

FIG.90A

FIG.90B

FIG.90A



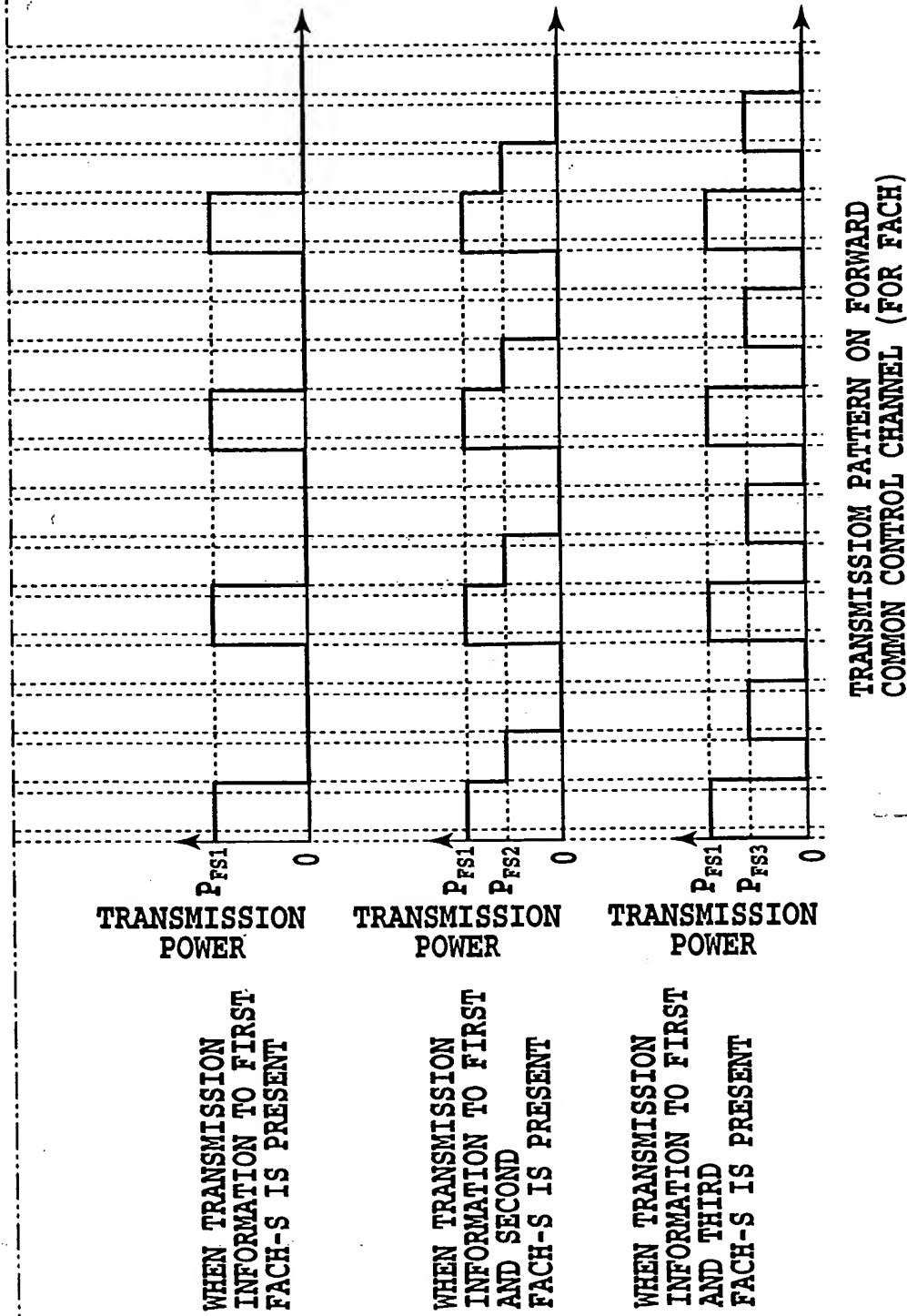


FIG.90B

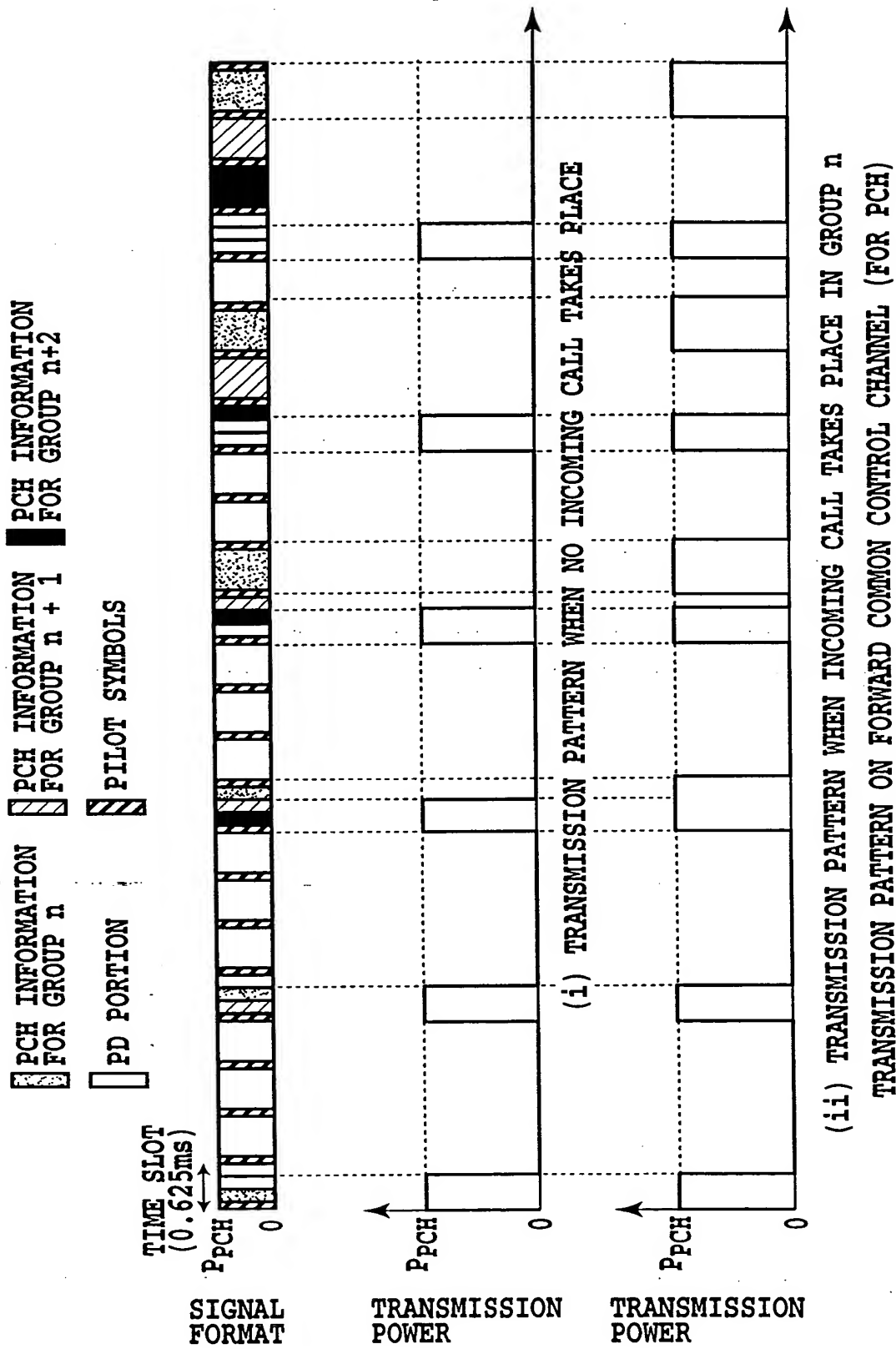


FIG.91

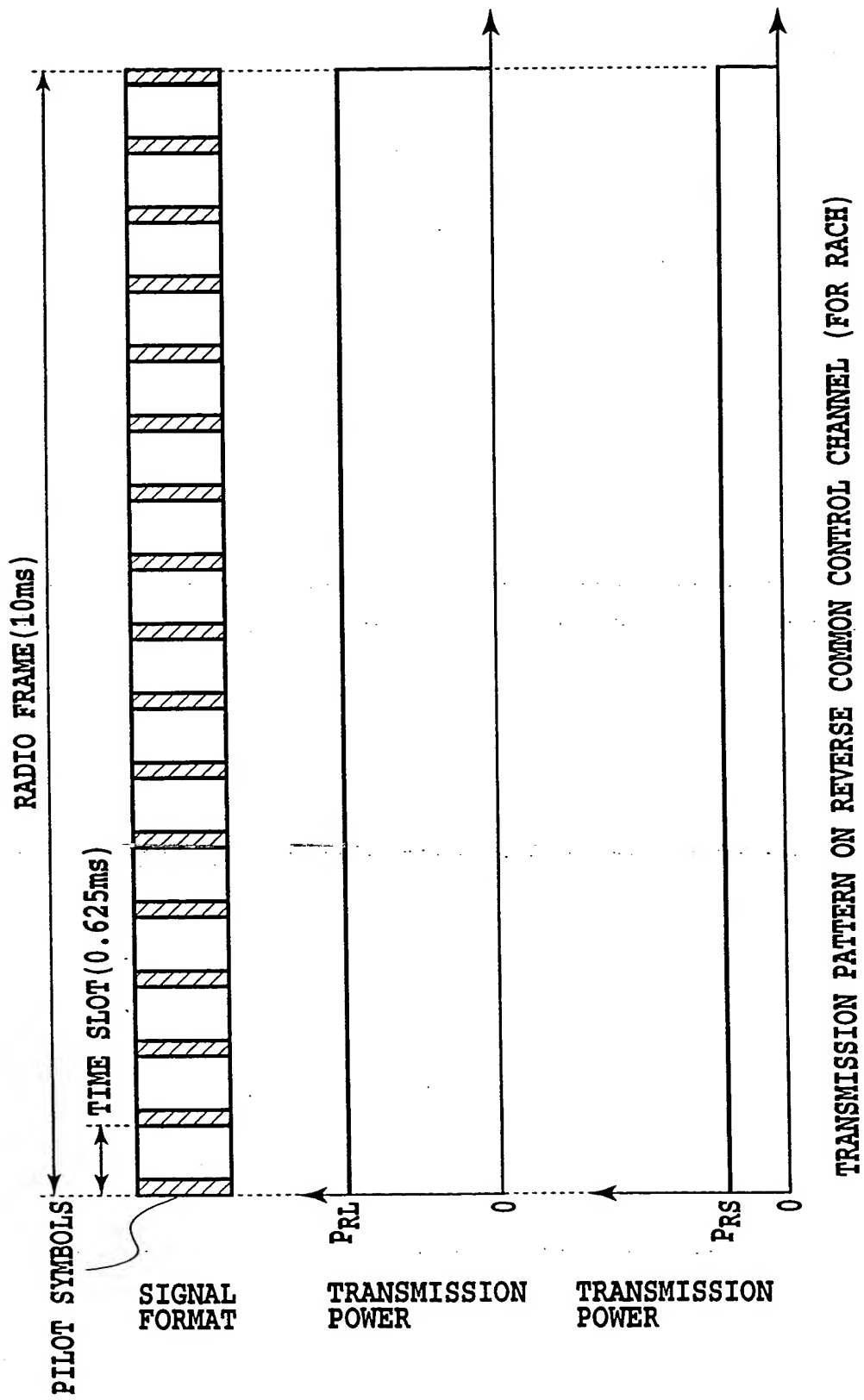


FIG.92

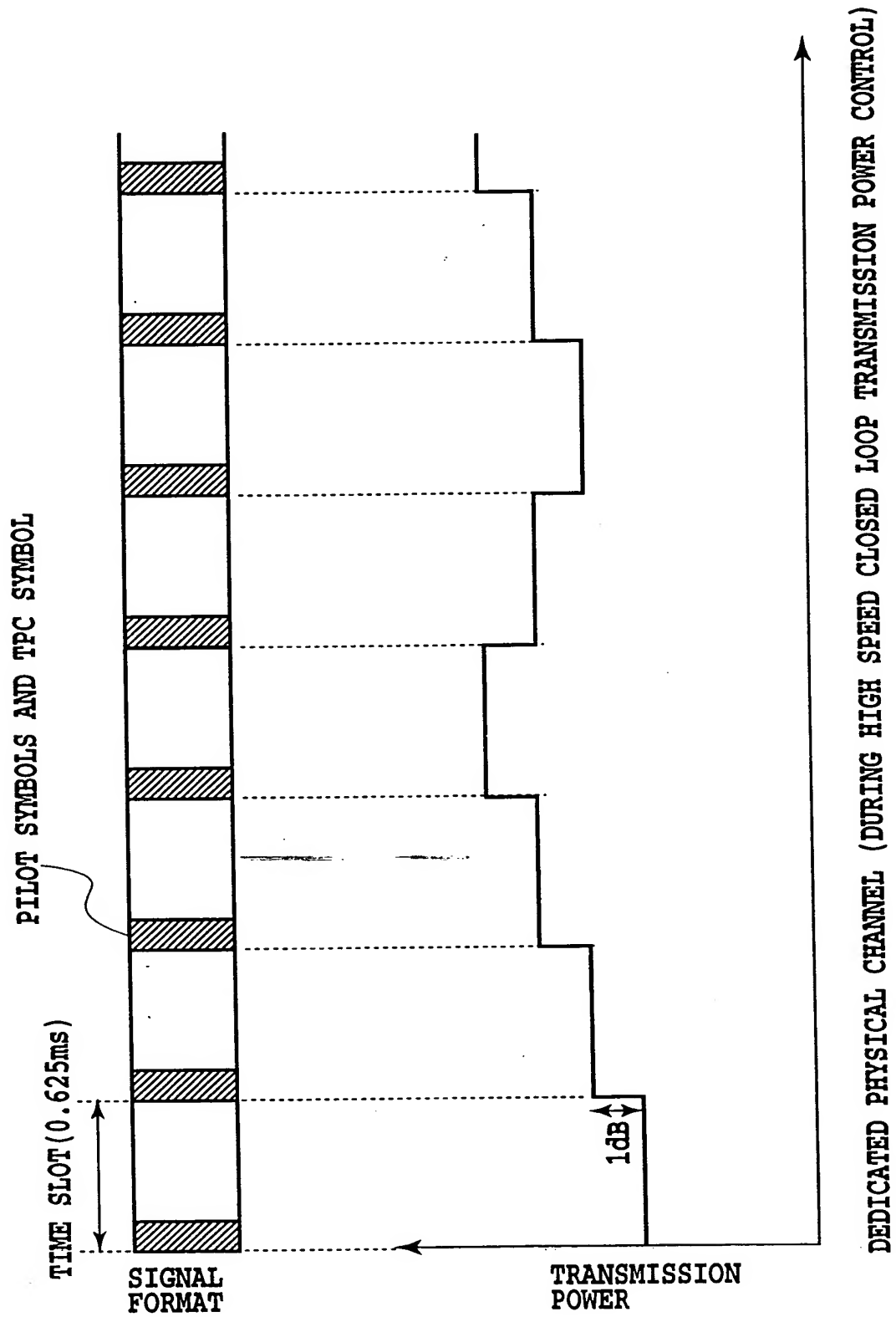
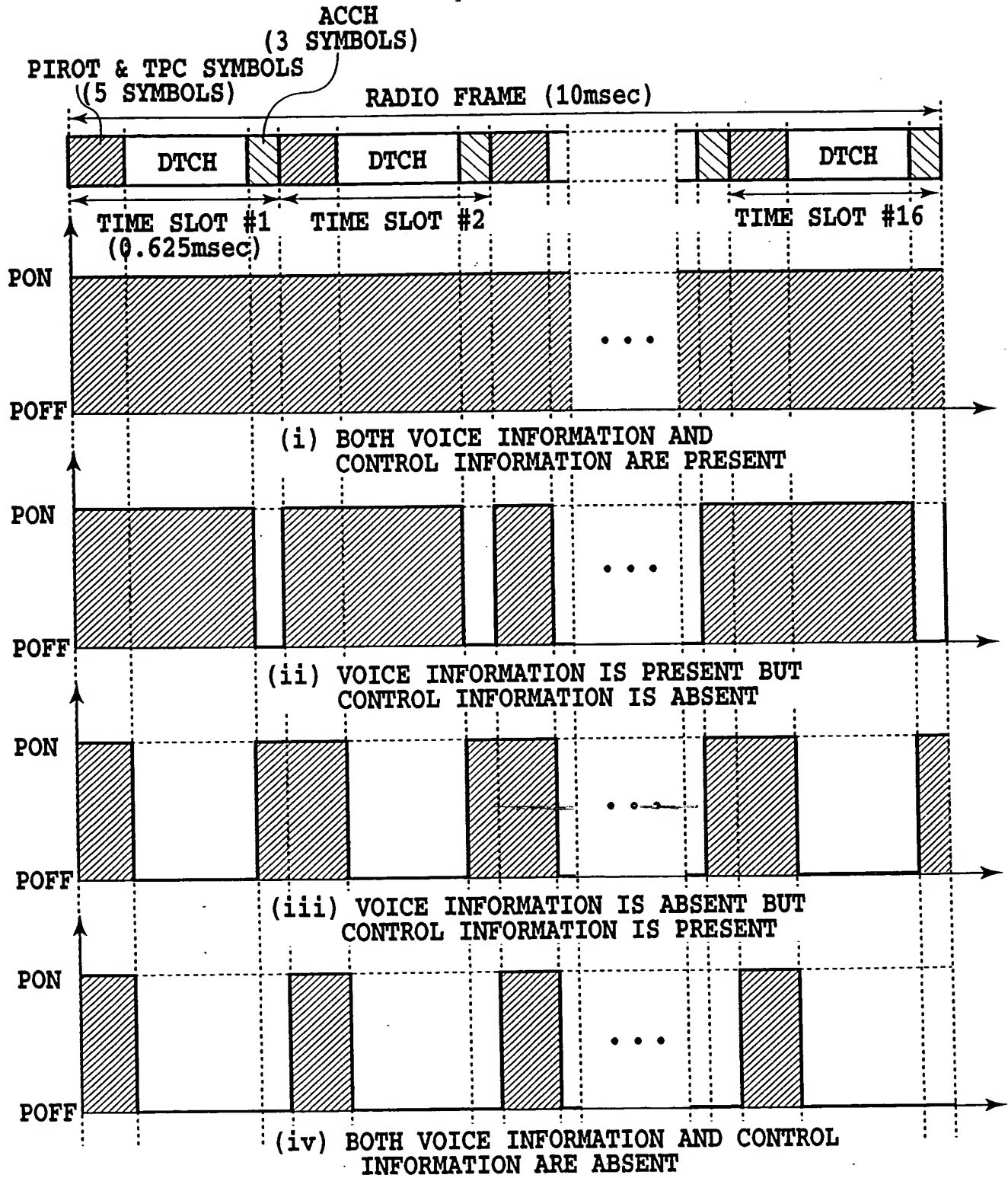


FIG.93



32 KSPS DEDICATED PHYSICAL CHANNEL (DTX CONTROL)

FIG.94

FIG.95

FIG.95A

FIG.95B

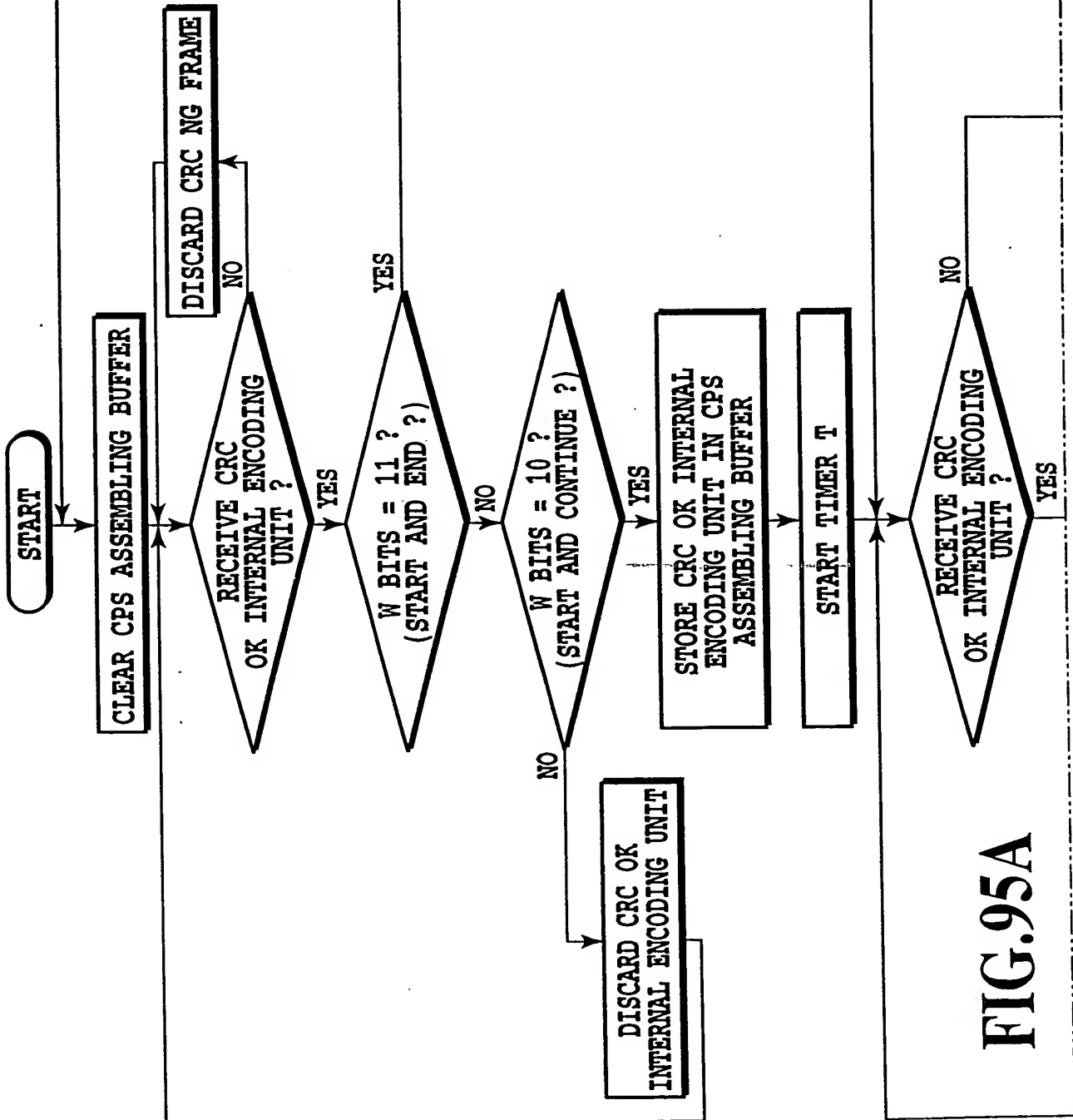


FIG.95A

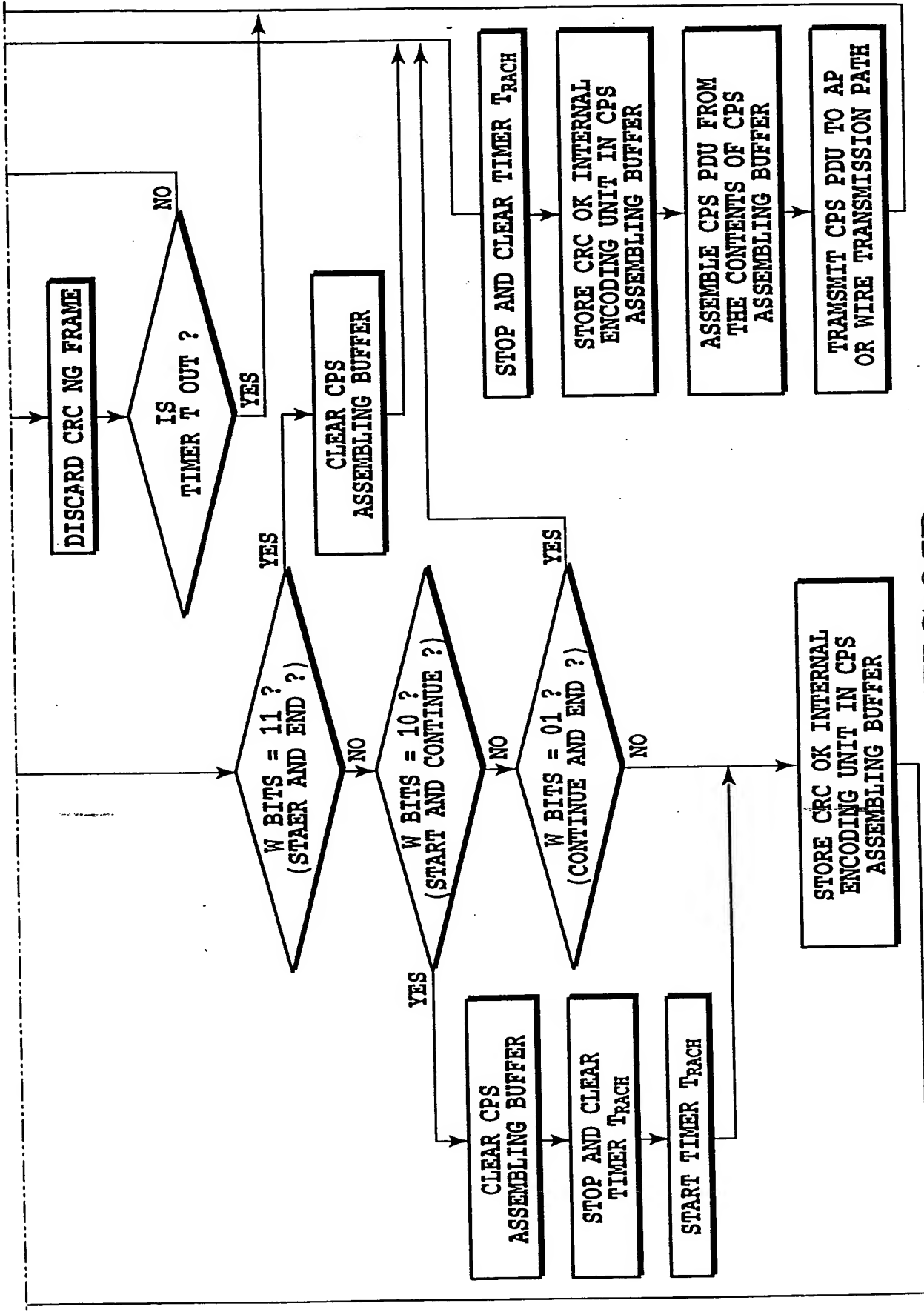


FIG. 95B

FIG. 96

FIG. 96A

FIG. 96B

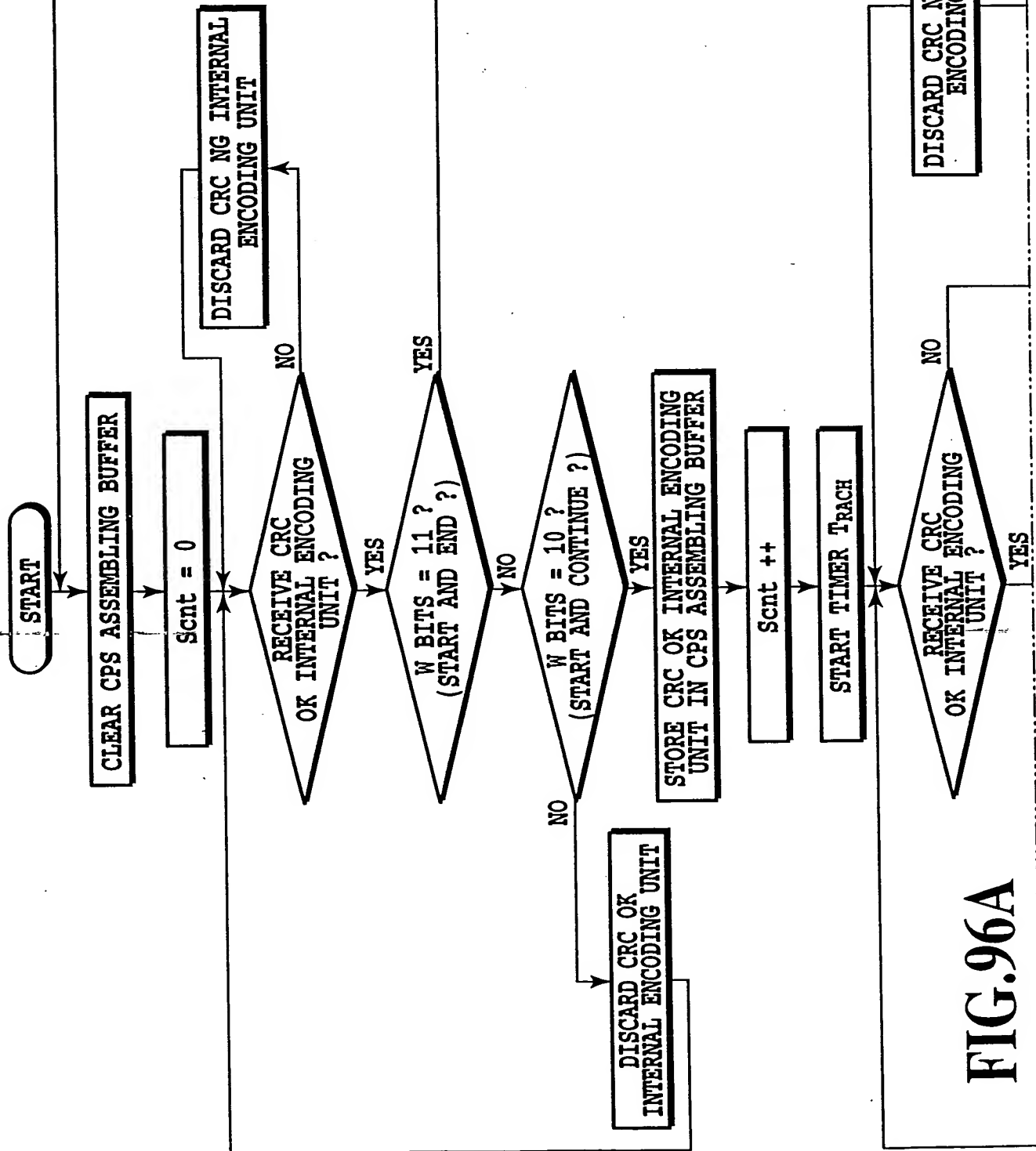


FIG. 96B